

ITEMS OF INTEREST.

VOL. XVIII.

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No. 11.

OUR CASE IN COURT.

A LAST WORD.

In the October number of *Welch's Monthly* the publisher announces a new departure, which is designated at the end of his brief statement in the words, "To further emphasize our independence we adopt with this issue a more distinctive title page." As a matter of fact, the adoption of the "distinctive title page" was in pursuance of an order of the court. At the hearing of the case, Mr. Robinson assured the court of the honesty of his intentions, and agreed to abide by the order of the court and to change his journal, so that it should no longer be an imitation of the ITEMS OF INTEREST. As an evidence of this "honesty of intention" the October number appears with a difference, which is confined exclusively to the color of the cover and first page thereof. On the second page we find, in exactly the same type, the same old familiar department headings, which so long adorned the same pages of the ITEMS OF INTEREST. Really, it does seem as though the publishers of *Welch's Monthly* are unfortunate in their method of proving their honesty of purpose. To the ordinary mind it would seem that it would have been more honorable for the new publishers, in obeying the order of the court, to obey it in the *spirit* rather than in the *letter*. It seems odd that they should have been so poor in words as to find it impossible to describe the contents of their magazine in other terms than "Original Communications," "Current Thoughts," "Our Question Box," "Practical Points," "Items," "Hints" and "For Our Patients." To say the least, it is exceedingly bad taste for them to adhere not only to the department headings which have been so long identified with the ITEMS OF INTEREST, but also to continue to use identical typography. Can they find no other type? Are there no other words in which to express the contents of their departments? Having by law compelled these people to abandon our cover, we believe that by similar process we could

also compel them to cease this imitation of the internal make-up of our magazine; but as we have faith in the dental profession to believe that they will not countenance the curious methods of Mr. Robinson, we do not feel that it would be worth the time and bother to make another appeal to the court, but will be satisfied to let the profession now pass judgment.

To one other matter we must refer. Among the editorials we find the following curious little paragraph: "The new publishers of the ITEMS OF INTEREST are mistaken in saying we withheld manuscript for August which belonged to them. *This was still in our hands when the ITEMS was sold*, and did not belong either to the Wilmington Dental Company or the new publishers." Truly this is *naïve*, not to use an English word of similar sense. The writer of the excerpt makes an admission that matter intended for the ITEMS OF INTEREST was still in his hands, and, by some curious feat of mental necromancy persuades himself that "copy" forwarded for publication was his personal property, because not yet submitted to the printer. We believe that the common law would decide that manuscript forwarded to any employee, of any publisher, and intended for publication, is really the property of the publisher; said employee being but an agent in the matter. As to our being mistaken in our claim, we are too well acquainted with the laws of libel to print statements which we are not in a position to verify, and as we have an abundance of capital, we would invite the writer of the above paragraph, or the publisher of *Welch's Monthly*, or both, to bring suit against us for the statement, which we reiterate, that they withheld matter which was, strictly speaking, the property of ITEMS OF INTEREST. We have in our possession the proof, not only that matter which they published in their August number was intended for the ITEMS, but that similar matter, originally prepared and intended for the ITEMS OF INTEREST, has been published in their September number, and in their October number. We prefer not to be more specific until we are called upon to meet these gentlemen in court. With this statement we close our case in the pages of the journal, preferring in the future to occupy them with strictly dental matter.

PUBLISHERS.

ORIGINAL COMMUNICATIONS.

NEW JERSEY STATE DENTAL SOCIETY.

MORNING SESSION.

AMALGAM AND DENTAL ALLOYS.

By Dr. W. Edward Halsey.

It is my purpose simply to call your attention to a few facts and possibly to provoke a free discussion; and certainly the subject is deserving of more study and attention than many of us have given to it.

I shall not go into the history of amalgam, but accept it as we find it to-day at the head of our list of filling materials for tooth salvation.

The metals which are necessary in the production of a good alloy are silver, tin and copper. Gold certainly improves the color and apparently makes a smoother working amalgam when added in the proportion of 2 to 4 per cent., but there is a question as to its value otherwise.

A very small per cent. of zinc improves the color, and also tends to prevent shrinkage, but the edge strength will be lessened materially. None of the other metals have been found to possess any practical value when combined in a dental alloy, and some of them have been shown to be positively detrimental, even in very small per cent.

There is great difference in opinion regarding the best formula for an alloy, and the experiments of Professor Black will undoubtedly go far toward settling this question. The formulas of Professor Flagg seem to be the best that we have as yet.

The making of a dental alloy is so simple, that I wish to describe the methods employed. The metals should be obtained from the refiner in the granular form, with the exception of gold, which should be rolled thin and cut into small pieces.

The hessian sand crucible, with cover, is best adapted to the work, and stands the heat very well. I have melted as often as eight times in one crucible in a gas furnace, but would only advise using once when melting in grate fire or forge. I prefer the grate or forge fire for melting, but a good gas furnace will answer, or even a kitchen range, if no other is to be had.

The crucible should be heated to a cherry red and the in-

side coated with powdered borax, spreading with iron rod. The metals should be immediately poured in from a tin scoop, a little borax sprinkled over them, and the crucible covered. The tin begins to melt immediately and aids very materially in reducing the more obdurate silver, gold or copper. In fact, these metals, when melted with the tin, are reduced at a much lower temperature than necessary to melt either one alone, the tin apparently acting as a flux. The metals will melt within four or five minutes, and, as soon as they settle, should be stirred by a few quick turns with an iron rod, heated to a cherry red, and immediately poured into a soap-stone mould. The ingot will harden very quickly, but should be left in the mould to cool slowly. I find I am making a much better alloy now than I did two years ago from the same formulas, and I attribute it wholly to melting at a lower temperature. There is less oxidation, and the loss of metal in making the melt is hardly appreciable. The ingot may be cut by machine or a coarse 14-inch flat file, which I prefer. The filings should then be sifted through coarse cheese-cloth and a magnet used to remove all particles of steel.

When first cut, an alloy having 60 per cent. or more of silver, sets so quickly that it is hardly practicable for use, and also requires a proportionately larger per cent. of mercury.

In this connection I wish to read a communication from Professor Black, of Jacksonville, Illinois:

JACKSONVILLE, Ill., June 4th, 1896.

Dear Doctor Halsey:—Your kind note just received. I am not quite through with your alloys, but expect to be next week, and will give you a report of them. In the mean time I wish you would give me some further knowledge of the specimens of cut alloy that you sent in the package. First, how were they cut—with a file, or with some kind of machine? Second, what treatment have the filings received after cutting, if any? Third, have the filings been exposed at any time, to your knowledge, to a temperature higher than that of ordinary room temperature? Fourth, how were the filings kept after cutting, previous to shipping them to me? What was the date of the cutting? Answers to these questions will enable me to form some judgment as to the rate of the ageing of the alloys under natural conditions of weather. Without this information tests of the cuttings can be of no practical value to me. None of the alloys yet studied give the same results two weeks together *after cutting*. Ten months' trial shows no changes of the alloy in the ingot. I am anxious to study these changes of cut alloys under all possible conditions, but without knowledge of the conditions to which they have been exposed any study of them is useless. For this reason the arti-

cles in the *Cosmos* last year are now of no value except as showing the condition of the alloys on the market. In this they are perfectly correct. The instrumental facts are in every way reliable, but the deductions are incorrect, because the conditions to which the alloys had been exposed were unknown; indeed, at that time we had not the slightest knowledge of the changes brought about by time, and special differences of conditions, in the expansion and shrinkage of amalgams. Developments have now shown that most of the shrinkage of amalgams made from alloys in the market is due to the conditions to which they are exposed after cutting. This is enough to show you why I make such a statement about my own articles in the *Cosmos*.

Yours truly,

G. V. BLACK.

P. S. These alloys are proving to be of great interest. To this date the gold alloy, *fresh cut*, has given expansion—16 ten thousandths—exposed to temperature of 120 degrees Fahrenheit for six hours—zero. Same temperature, three days, shrinkage, five ten thousandths. That with copper will not be very different.

B.

JACKSONVILLE, Ill., June 13th, 1896.

Dear Doctor Halsey:—Your letter received. Thanks for the dates of cutting of alloy. Inclosed I send transcript of the brief of my notes relating to your alloys. I think you will understand the report without especial explanation, but I may say that the reason for annealing at 120 degrees is that I have found by careful comparisons that it is a very good test of the sensitiveness of alloys; *i. e.*, of their expansion-shrinkage range, and the readiness with which they are affected by ordinary temperatures. My own cuttings, put away last year, have, many of them, now about reached the shrinkage produced by one week at a temperature of 120 degrees. It seems that all of the alloys used for dental purposes (of the silver-tin group) change in the direction of shrinkage for a year or more, each individual formula having its own special degree of sensitiveness. This expansion-shrinkage range varies from 60 or 70 points (ten thousandths) down to 8 or 10 points.

I cannot depend at all on alloys sent me cut to make out the principles that underlie changes in cut alloys. This I am doing mostly from alloys made especially for the purpose. But ingots sent me by various makers of alloys add variety, and are of great importance as showing differences that occur through differences in handling the melting and the casting. Generally these differences have not been great, and it has occasionally been a question with me whether they were not errors of computing the percentages; especially since I have found some of the latter when I have been furnished the figures (weights) that went into the pot. I wish I could have these figures in every case.

You speak of putting your alloys in corked bottles and of not exposing them to the air, and this reminds me of the article I

published in the January *Cosmos*. I may as well say to you, in advance of publications I may make, that the theory that the shrinkage of alloys is due to oxidation has been completely disproved by my own results. Alloys come to shrink just the same when put in pure hydrogen, nitrogen, oxygen, chemically dried air, chloroform, rigoline, and in a number of other ways calculated to induce or prevent oxidation.

Yours truly,

G. V. BLACK.

Since my correspondence with Professor Black I find I am all at sea and hardly know "where I stand." I intended telling you that an alloy containing 4 per cent. of copper, 63 per cent. of silver and 33 per cent. of tin would make an amalgam which would not shrink. But if we are to accept the experimental work of Professor Black as reliable, I find such a statement must be qualified, and to what extent I am not able to say. I have used many ounces of this alloy, and also one where gold was substituted for the copper, and I certainly could not detect any apparent shrinkage in the mouth. I would usually begin to use it about one month after cutting, or as soon as I found I could work it successfully. A 5-ounce bottle would seldom last me more than two months, and as I made but a 5-ounce ingot at a time, I was using a comparatively fresh cut alloy. Judging from the table of experiments by Profesor Black, which he sent to me, the shrinkage-expansion range must be very slight during the second and third month after cutting, if the alloy is not subjected to an unusually high temperature.

The teachings of Professor Flagg are that an alloy is not in condition to use until it has aged for many months, and this rule I followed during my early practice; but in experimenting I found the alloy of the two formulas, which I have given, could be worked successfully after standing two or three weeks, although setting very quickly and requiring very rapid work. The results were also better than when the alloy had aged for a number of months, especially when used in combination with zinc phosphate. The color of these fillings remains very good and the edges are so perfect that there is little more to be desired.

I cannot urge upon you too strongly the use of amalgam and zinc phosphate in combination, wherever a large filling is to be inserted. The best amalgam work which I have seen, both from my ovr hands and from the hands of other operators, is where the two materials are used in combination. I have seen a number of such fillings recently, inserted ten or twelve years ago, by Dr.

Van Woert, which are absolutely perfect, and in teeth where crowning would have been resorted to by the average practitioner.

It seems hardly necessary to describe the details of using amalgam and zinc phosphate in combination, but I will refer to a simple case, such as we are called upon to treat daily.

A child, from eight to twelve years of age, comes to us with the crown of the lower first molar crushed in and the tooth aching from impacted food and *debris*. This is carefully dislodged, the cavity syringed with tepid water, and the rubber-dam applied, where practical. The extent of decay is found to include nearly the whole of the crown dentine, leaving little else than the enamel side walls standing. The pulp is alive and covered with a reasonable thickness of softened dentine, which is most carefully conserved. Great masses of softened, leathery dentine are removed from the periphery, and the side walls carefully cleaned of all decay. An anodyne is now used to allay the aching, which may be campho-phenique, oil of cloves, or any in the list which are not escharotic. After careful drying, the cavity is ready to receive the filling. What shall it be? I have seen many such teeth filled with zinc phosphate without any attempt at pulp protection. We have all seen such cavities filled with amalgam, and within a year the patient returns with the tooth abscessed and badly discolored, and the walls broken down.

It will be admitted that neither amalgam nor zinc phosphate alone fulfills the demands of such a case, which are: First, pulp protection; second, strengthening of frail walls and prevention of discoloration, and, third, preventing recurrence of decay.

I would select a thin wafer of asbestos paper for pulp protection, large enough to nearly cover the bottom of the cavity. The under surface being coated with Canada balsam, the wafer is carefully pressed into position and the balsam allowed to harden for a few minutes.

Zinc phosphate is our only plastic which neither shrinks nor expands while setting, and is very adhesive; it is also of good color, therefore it is selected to sustain the weak walls and to preserve the color.

Amalgam is our natural dependence for completing such an operation, as it resists both attrition from mastication and the corrosive action of the fluids of the mouth.

To use the amalgam and phosphate in combination while both are plastic is the most satisfactory, though it requires rapid manipulation.

The amalgam is first mixed to the required plasticity and held in the hollow of the left hand, while the cement, which has previously been placed on the mixing slab, is brought to its most adhesive condition, and immediately placed in the cavity and pressed into close apposition with the cavity walls until nearly filled. A portion of the amalgam is then introduced, forced into the cement, which aids in its retention. The cavity edges are now cleaned with small chisels and the filling finished with amalgam, the last portions being wafered hard, which allows of a quick finish and a thorough burnishing before the patient leaves the chair.

I have filled many such teeth in this manner during the last five years, which I see about every six months, and they are certainly very satisfactory to both patient and operator.

There is such a wide difference of opinion regarding the methods employed in the working of amalgam, that the subject seems worthy of our consideration.

I was taught to weigh out, in small balances, the alloy and mercury in such proportions as were known to make the consistency desired for immediate insertion, but I have gradually drifted into the practice of using a surplus of mercury and then wafering the whole button lightly. The last portions added will usually need further wafering, but in this way I am sure that I remove more of the surplus mercury than where just enough has been used to produce amalgamation, and the removal of surplus mercury is certainly a desired result. Referring to Professor Black's tests of the silver, tin, gold alloy, fresh cut, he has shown that where just enough mercury is used for amalgamation the expansion is 4-10,000 of an inch, but where a surplus is left in the filling the expansion is increased to 16-10,000.

The same principle applies where shrinkage is present, the ratio being increased in proportion to the surplus mercury retained.

The best method of removing the surplus mercury is a point upon which many of us differ; but, in my hands, the heavy Flagg wafering pliers and chamois skin accomplish the best results. Where the cavity is large, accessible, and will permit of some pressure, the whole button may be wafered just hard enough to break with a clean fracture. The portion first placed in the cavity can be crushed with light pressure, and uniformly tapped against the cavity walls; the succeeding portions are added and tapped into homogeneity with small ball burnisher, and it is surprising to the uninitiated how much easier this is accomplished

by tapping than by pressure or burnishing. The last portion added may need further wafering, which should be done with force, and when crushed upon the surface enough mercury will be drawn from the filling to re-amalgamate the wafer, which will finish hard enough to trim and burnish to contour with suitable instruments. The use of amalgam in this manner demands very rapid operating.

DISCUSSION.

DR. FLAGG.

I wish to speak very carefully of this matter, because I wish it to be distinctly understood that I do not desire to underrate the *motives* which have actuated Professor Black in his recent work in connection with that branch of dentistry, which, during the last fifteen or twenty years, seems to have forced itself upon the attention of these gentlemen. When, about eighteen years ago, I went to Niagara Falls to read a paper, which I entitled "Plastics, a Power in Dentistry," Dr. Black was one of the members of the committee who did his best to prevent me from reading that paper. Under those circumstances, I have not even cared until this morning to say one word in regard to the work done by Professor Black. As I look at it, there is not a conclusion of Professor Black's which should disturb the equanimity of the least positive of any of us. So far as I know, the experiments were conducted in such a peculiar manner as to develop but one extraordinary thing. Now, he has discovered something that certainly surprises us, which is that if a steel point is placed on an amalgam filling and continuous pressure is made, the amalgam "flows!" When that was enunciated I felt that my heart stood still! I just thought to myself, "Only think of it! Nine-tenths of my patients are going around with a little steel point resting on the centre of each one of the amalgam fillings, which I have introduced into their mouths, and they are closing their jaws upon it and making pressure! What will become of these plugs? They are all going to flow!" So I immediately issued a little circular to all the patients and earnestly urged them to take out the little points and not to make the pressure any more, because it was detrimental, and they all very graciously informed me that they would cease!!

Now, when he comes to the various expansions and shrinkages, he finds an expansion and shrinkage of what—4-10,000. I am not a lightning calculator, but it is just about 1-2500. What is meant by that? It is 1-2500 of an inch. It is just as if you put an amalgam filling into a tooth of an inch in diameter. I have

seldom put in as large fillings as that (laughter), but if you do, it will shrink 1-2500 of that inch! When you come to look at this proposition and see that the shrinkage is from both sides, then you have but 1-5000 of an inch, and when you reduce the filling to one of half an inch, you have the shrinkage reduced to 1-10,000, and when you reduce the filling in size to one-eighth of an inch in diameter (an ordinary size), you have the shrinkage reduced to 1-20,000 of an inch. What does that amount to, practically? Why, it would have been enough to make me turn in my grave if I had gone there when I ought to have; to think that such nonsense as that should so upset men that they "don't know where they are at!" Thank God, I know where I am at!

I was just thinking of the new Departure Corps. Twenty years ago, when engineers started to lay out a line of railroad, they would survey a certain route, then they would go back to where they started and take what they called a "New Departure," and they would survey another route; but, up to that time, the term "New Departure" was a strictly engineering term, and, as far as we know, no term like that was applied to anything except surveying. But somehow the work done by the organization known as the "New Departure Corps," resulted in what was called the "New Departure Creed." Why that corps was named "New Departure" no one knew, or why the creed was so named. They got the name somehow as words get into slang, if they are found appropriate, and if they are successful, as is the term "getting there with both feet," it is useful; it is a term which is recognized as being very expressive. So it was that when this corps undertook its work, and when it enunciated its Ten Commandments, or the ten principles, as it were, of the New Departure, it "got there with both feet," just as Satan did when he went into the Garden of Eden, and it stayed there. The simile is this, he got in there, he has stayed there and created a good deal of trouble!

Since that time what has taken place in regard to the "New Departure?" Was it a failure, or a success? Has not the amalgam entered right into your practice ever since? Is it disreputable now for a man to say that he uses amalgam? At that time it was. Once in a while a man would say that he used it "when he could not do better." To-day we are told that amalgam is the best. The idea of a man doubting "where he is at" at the instigation of a man who says that "differences in the strength of the teeth have no influence as to their liability to caries!" Don't you *know* better than that? Could you not tell a

hard tooth from a soft tooth with your eyes shut? Could you not put an excavator into a cavity and excavate it and say, "that is as hard as a sinner's heart?" or into another and say, "that is as soft as mush, we shall *have to line it* and make a combination filling, and years hence we shall find it doing good work?" Then you know he tells us that there is "no choice in filling material," that a soft tooth can be filled with gold with just as much hope for success as with any other material, when an oxy-chloride of zinc filling would beat it to death. I have brought with me to-day a tooth that I filled twenty-five years ago, or more, the *first tooth* I filled using zinc chloride as a "*lining*." I covered it with gold. It was a tooth that had been filled by McIlhenny, of Philadelphia, an excellent operator, and the first filling failed in five years, and then it was filled by Elisha Townsend, the "best gold filler of his day," and it failed in five years, and the patient came to me and I filled it, and it lasted five years, and then he returned and I filled that tooth with oxy-chloride of zinc, and into that oxy-chloride of zinc I introduced a gold filling, as poor a gold filling as I knew how to put in. I showed it to the patient, and I took my probe and I stuck it in the filling, just as you would stick a pin in your pin-cushion. The patient said, "What are you doing that for?" I said, "For experiment. I want to see what this poor, miserable, good-for-nothing gold filling will do, imbedded in this zinc, in contradistinction to the lovely fillings that Dr. McIlhenny, Dr. Townsend and myself have put into this tooth for you before." Twenty-two years after that the tooth was lost in a peculiar manner, which would take too long to describe; but he brought me the crown of the tooth, showing that the filling, as the result of chloride of zinc, had maintained its integrity *for twenty-two years*.

Now, is there no choice of filling material? And Professor Black says there is no choice of filling material "beyond the operator's judgment as to which he can so manipulate as to *make the most perfect filling*."

You certainly know that there *is* a choice of filling material; you certainly know that in one place gutta-percha is the best material to use, and that in another gold is the best, and in another amalgam is as good, if not the best. You certainly know that; and if you know that, you know that when he says there is no choice in filling material, he don't know.

SYSTEMIC MEDICATION.

By Dr. U. G. Chase, Princeton, N. J.

The subject of this paper is one that should be thoroughly understood by every dentist who has the alleviation of his patients' sufferings at heart. No dentist can be thoroughly successful in his treatment of the various lesions met with in the mouth by purely local means. He must be able to intelligently prescribe remedies that will so act upon the system as to help Nature to restore the equilibrium of the part affected. What dentist can relieve the suffering of all his little patients during dentition by simply lancing the gums? It must be borne in mind that complicated systemic disorders are liable to occur; a febrile condition might be set up, when it would be appropriate to give refrigerants and sedatives (as cool water, neutral mixture of bromide of potassium, spirits of nitrus ether, compound spirits of ether, etc.), I realize that the dentist *avoids* all such cases by turning them over to the physician. The question arises; Is it, or is it not, the duty of the dentist to treat them? Who should be better able than he whose specialty is the mouth and teeth? There are many conditions which the dentists either ignores or turns over to the physician, which he should be able to treat. The teeth are, in a measure, a barometer of the general health.

A patient comes for an examination. Upon looking at the teeth we find them breaking down in all directions. Is it not a sign that the patient's health is bad? Would it not be folly merely to remove the decay and insert fillings without paying any attention to the general health? Often a tooth whose pulp has been capped will be increasingly sensitive to thermal changes. Sometimes it may be relieved, and the incipient inflammation arrested by giving a sedative, or one of the antipyretics, as phenacetine, or antikamnia. Odontalgia from malarial origin will be found to yield quite readily to quinine and nux vomica. Pain and soreness occurring in pulpless teeth will yield to a combined systemic and local treatment more readily than by local alone. I do not confine myself to any set remedies, though in quinine, calcium sulphide, tincture of aconite, salol et quinine, the bromides, the antipyretics and saline cathartics will be found a group of drugs that will help to conquer most of the peridental inflammations. I do not mean to claim that I succeed in aborting all cases of peridental inflammation, for there are cases where the prompt establishing of an abscess is the only

means of avoiding extraction. An abscess is more or less restricted and difficult to control and distressing to the patient, according to its location, whether in the upper or lower jaw, anterior or posterior position. Temperament, physical condition of the patient, and other circumstances influence its extent and duration. It is frequently attended with much oedema and severe systemic disturbances, when the most powerful sedative, astringent and cooling applications, with systemic treatment, is demanded to prevent disastrous results. It will be found good practice, when opening into teeth with putrescent pulps, to administer at the commencement of the operation from 40 to 60 grains of bromide of potassium, if the pain is severe. This drug must be used with care, and should never be given to an anæmic patient. In this age of local anæsthetics, when so much cocaine is used, it is necessary that we should be familiar with its physiological action. I am in no way antagonistic to our medical brothers. I realize that it is often best to turn the patient over to his or her physician; as, for example, where prolonged treatment would be necessary in a specific disease. Scurvy, syphilis, or malignant impressions that make their appearance upon the gums or in the mouth cannot be cured by local remedies.

In order to treat disease, we should thoroughly understand the theory of disease, which theory rests upon physiology, with its more or less technical adjuncts. Pathology is all that physiology is, with the engrossing and difficult element of perturbation, deflection, or shortcoming added. A great part of the theory of disease deals with changes or defects of structure and failings of function, which may be intricate and difficult to analyze, but are still well within sight of the line of health.

DISCUSSION.

DR. BREWSTER.

Systemic treatment comes less to us than to our medical brethren; nevertheless, I think it is important that we should give the subject a good deal of consideration. The medicines known as heart depressors should always be viewed by us as very near the danger line. I think that bromide of potassium in the stomach is more harsh in its action than the bromide of sodium. It seems to me that forty to sixty grains is a very large dose, certainly larger than I would feel justified in administering. About a week ago I had occasion to administer five grains of bromide of sodium, and within five minutes I was sorry. The

cardiac symptoms were alarming, and I could only restore the normal conditions by the use of nitrate of amyl and whiskey, and I was obliged to exhibit three pretty good doses of whiskey before I could elevate the pulse. Dr. Chase, did you ever use bromide of sodium, and don't you like it better than potassium bromide?

DR. CHASE.

Under certain circumstances I use both.

DR. BREWSTER.

From what I have learned from physicians I find that they incline to the belief that sodium is better than potassium, and where I have used it—and I have had occasion to use it a number of times during the last two years—I find the stomach is not so much upset by it.

DR. J. ALLEN OSMUN.

I believe the province of a dentist is to understand the different remedies which he is called upon to use; I think that he ought to be armed for any emergency; but I do not believe that it is the province of the dentist to treat his patients constitutionally.

We see a patient only for short sittings of from thirty minutes to an hour or an hour and a half. Our patients leave our offices and we do not see them again for one week, two weeks, or three weeks, as the case may be, and then they disappear from our horizon for from three months to a year. We cannot keep in touch with the patient as a family physician can. In an ordinary American family, the physician comes in close contact with the patient from childhood to middle age, and it stands to reason that that gentleman is in a better position to treat intelligently than any dentist can be. I believe the dentist's position should be this: He and the family physician should go hand-in-hand; they should act together and consult together, and in that way get better results than either could alone.

I think the province of the dentist is to take care of the mouth and to turn the patient over to the physician for constitutional treatment. I cannot conceive that any dentist, with his active life and with his limited time and infrequent visits, could give the patient treatment such as the family physician could. (Loud applause.)

DR. WELD.

I should like to ask Dr. Chase whether the laws of New Jer-

sey allow a dentist to use such powerful medicines as he has mentioned, and to use them under the circumstances which he has stated?

THE CHAIRMAN.

Dr. G. Carlton Brown, of Elizabeth, can, perhaps, answer that question.

DR. G. CARLTON BROWN.

I am very sorry that I was not here to hear the paper read; I only heard Dr. Osmun's remarks. I coincide entirely with Dr. Osmun, not only from a common sense, but from a legal standpoint. The average dentist has no more right to undertake so-called constitutional treatment (which, to my idea, is the most absurd combination of words that a dentist ever succeeded in using for the mystification of himself, or anyone else) than a physician has to go into the work of filling teeth. There may be exceptional cases where a dentist may, perhaps, suggest to the physician the line of treatment, but for a dentist to undertake constitutional treatment is legally an open question. That question has been put before some of the lawyers of the State, and they say that while the line seems to be very closely drawn, it is not so; that dentistry is a legalized specialty, and that when you depart from the direct line of that specialty and go into constitutional treatment you are really entering the province of medicine, and you must have a license from the local board. Under those circumstances, I think that the less general medicine dentists try to practice, the better it will be for them.

DR. WELD.

I think a dentist makes a mistake in prescribing medicine. Although I am an M. D., I would not think of doing it. I think Dr. Osmun, when he spoke of coöperation with the physician, hit the nail on the head. Very often the dentist has a peculiar opportunity of observing the difficulty, and when he calls the attention of the family physician to that, I think he is doing his duty, not only to the patient, but to the patient's physician and to himself.

DR. VOGEL.

In every one of the meetings of our society this question comes up, and it is seen that very decided impressions are held on the opposite sides of the question. I cannot conceive a dental practice into which there must not come more or less systemic treatment. It seems to me that the lines upon which that sys-

temic treatment should go is what should be decided. We would not for a moment undertake to treat a patient for typhoid fever, small-pox or consumption; those things are out of our sphere just as much as the filling of teeth is out of the line of the regular practitioner. There are some cases which I treat systematically with as much intelligence as the physician whose patient comes to him with an aching tooth, which he is recommended to treat with bread poultices, to draw the abscess to the surface and have it lanced, which has occurred in my practice.

DR. CHASE.

So far as the law of the State of New Jersey is concerned, that I do not know anything about as to whether they would keep us from prescribing such remedies as nitrate of amyl or nitro-glycerine. All I can say is that any man who uses anæsthetics may have a time come when he will want to use such remedies, or the patient may possibly die before he can go out and secure a physician. If we cannot administer these medicines we have no right to administer cocaine; neither have we any right to administer gas or chloroform.

CLINICS.

The afternoon was devoted to clinics, and the following report thereon was subsequently presented on Friday morning by Dr. Oscar Adelberg, Chairman of the Clinic Committee:

Dr. J. F. Adams, of Worcester, Mass., gave a practical demonstration of applying gold bandages. He also exhibited a new appliance for a chin-rest, and a new rubber-dam stretcher.

The gold bandage is designed for the preservation of frail, badly decayed teeth in the anterior part of the mouth, which do not promise well under ordinary methods of filling. The cavities are first filled with oxyphosphate. The bandage is made of pure gold plate, No. 32, which is wrapped around the tooth and the ends united by pressing them into a slot, which has been cut in the labial surface of the tooth, and into which a gold filling is afterwards packed.

The slot is made about one-eighth of an inch long in a vertical direction, starting slightly beneath the margin of the gum. The bandage also extends just under the free margin.

It is cut away so as to show only a narrow band of gold upon the labial surface, while the proximal and palatal or lingual surfaces are entirely covered, in the case of bicuspids, and properly shaped flaps are left at the proximal sides (supposing the tooth to

be decayed through the crown), which are folded over the articulating surface and anchored in the fissure with a gold filling.

Before the bandage is applied, its inner surface is smeared with a thin coating of cement, and the gold is carefully burnished to the tooth while the cement is still soft.

This treatment is admirably adapted for the teeth of elderly people, where the gums have receded and the exposed parts have become softened. The diseased portion is scraped off, the surface dressed down with coarse polishing straps, wiped over with a strong solution of nitrate of silver, and the bandage applied.

He also has a method of using celluloid wedges for pressing the gum away from the cervical margins of approximal cavities while operating. Also, a rubber-dam stretcher and a chin-rest which supports the jaw comfortably in any position while operating upon the lower teeth.

Dr. William J. Twilley, of Baltimore, filled a central incisor with gold, a large contour in which he inserted about eight sheets of gold in forty-five minutes, a very rapid and a very pretty operation. The same tooth was treated by Dr. L. C. Leroy for root filling by his method, in which he claimed he had not had a failure in three years.

Dr. Twilley illustrated the ease with which gold can be worked by a set of pluggers, specially designed by himself. The peculiarity of these pluggers is a true adaptation of the points to the contour of the filling.

Dr. Hollingsworth, of Santa Barbara, Cal., gave a clinical demonstration of "Phases of the Morton System of Dental Cataphoresis, with special references to new appliances for bleaching of devitalized teeth." The subject presented was a young lady having a devitalized and badly discolored superior right central incisor. On the mesial surface was a large gold filling, which was removed in order to secure the necessary surface of dentine. When this was done, it was found that the root canal had been previously filled, otherwise root filling would have been the next step in order to prevent the electric current from following an easier path through the apical opening.

For the purpose of subsequent comparison, gentlemen present were requested to select from porcelain samples shades corresponding to the devitalized, as well as the normal, neighboring teeth. The normal teeth were fairly represented by shade No. 2, while the tooth to be operated upon was approximately of the shade of No. 6, of the S. S. White shade samples.

A 25 per cent. solution of pyrozone (aqueous) was the agent

used. The tooth was completely surrounded by an especially devised rubber nipple, of rubber-dam thickness. Opposite the mouth of the nipple a small opening was made, as in the application of the rubber-dam.

By means of an expanding instrument passed through the neck, slightly beyond the hole made by the punch, the nipple was so expanded as to allow applications to the tooth. After being secured by silk ligatures, a small glass tube containing a platinum coil and supplied with a connecting metallic tip was inserted into the neck or projecting end of the nipple.

The metallic or terminal end of the tube presented a tapered opening through which the pyrozone was introduced, and into which was fitted a tapered metal plug, forming the terminal of the wire leading to the electric supply. To facilitate the introduction of the pyrozone into the glass tube, a special device was used. This was two connected rubber bulbs, having a common nozzle, duplex in character; *i.e.*, the longer nozzle of the one bulb passed through the other bulb and nozzle in such a manner as to preserve separately the function of each.

The outer bulb was filled with the liquid in the usual manner; the other was then slightly compressed and the common nozzle inserted into the tube opening, which it closely fitted. The compressed bulb was then released, thus causing a collapse of the nipple by the suction produced. While in this condition the bulb containing the pyrozone was compressed sufficiently to fill the nipple and tube, any excess of liquid being drawn into the lower dry bulb by reason of suction. The tooth being now surrounded by the bleaching agent, the syringe or injector was removed and the paper plug forming the terminal of the positive wire connecting with the electrical supply was inserted. The cathode was placed in the hand of the patient.

The electricity was applied with an initial voltage of thirty, current indicated at this time (one and a half milliamperes) proved, according to previous experience, to be somewhat above the average, indicating a leak. The point of leakage was discovered and, by the application of sandarac varnish, effectually stopped for the time. The voltage was then raised to sixty, the current then remained at one and a quarter milliamperes, about the same as when the voltage was at thirty. Any increase of current above this amount, in the effort to hasten the operation, was objected to by the patient. As a slight leakage was again indicated by the meter, the current was continued for forty-five minutes, instead of thirty minutes, the time usually allowed in average

cases. The current was then turned off and the electrodes and appliances removed.

Previous experience by the operator in this method of bleaching has led him to believe that the bleaching action of the agent continues for several hours after the cataphoric action has ceased, which theory was supported by the fact that when the tooth was examined this morning it was noticeably lighter in shade, and so nearly approximated the shade of the adjoining normal teeth as to be practically unobservable.

Dr. Weld, of New York, filled the roots of a third inferior left molar by the "Chemico-Metallic Method."

The anterior root contained two delicate root canals, the lingual being larger and better defined than the buccal canal. The posterior root had only one canal. The tooth was devitalized about two weeks ago. All the canals contained dead and partly putrescent pulp tissue which was not removed. The time of the operation of filling the three canals was about ten minutes.

Dr. Frank G. Gregory, of Newark, N. J., presented a case of fracture of the left superior incisor. The patient, a boy twelve years old, fell in the school-yard and, striking the pavement, fractured both superior central incisors; the right central having the mesio-labial angle broken about one-fourth the length of the tooth, while the left incisor sustained a more extensive fracture of the mesio-palatine angle, extending beyond the free margin of the gum. The boy presented himself, accompanied by his mother, about two hours after the accident, and, being of a very nervous temperament, was greatly alarmed. The pulp of the left incisor was nearly exposed, being covered by a very thin lamina of dentine, through which could be seen the inflamed pulp; the patient could not draw air through his lips without suffering intense pain. After assuring the mother and boy that the disfigurement could be overcome, the injured surface was bathed with oil of cajaput and some temporary stopping placed to protect the sensitive parts, a capsicum plaster applied, and the patient furnished with a supply. He was then dismissed for four weeks, at the expiration of which time the fractured surfaces were found to be still extremely sensitive, even to the application of absorbent cotton. A 10 per cent. solution of cocaine was applied, using the electric current for about twelve minutes. Retaining grooves were then cut with impunity, and the left incisor was built down until the gold reached the mesio-labial angle; the cutting edge of the tooth was ground to resemble its fellow and the right incisor was then restored at the mesio-labial angle with gold.

About ten days later bands were adjusted to the teeth adjoining the left central, holes drilled in the soldered ends of the bands left on the labial surface of the tooth, a piece of fine piano wire placed through all three bands, and to prevent the teeth being forced out of line in the arch, heavy waxed floss was tied around the four permanent incisors and the two temporary cuspids. After five days, the tooth, which was fully one-third shorter than its fellow, was elongated sufficiently to place the retainer.

After a lapse of over six months the pulps in both centrals are found to be alive and healthy and the patient presents a natural appearance, the result pleasing to all interested parties and highly satisfactory to the operator.

Dr. William T. Wyckoff, of Philadelphia, extracted with Wyckoff's obtundent twenty-one teeth for five different persons, entirely without pain, except in two cases where slight pain was experienced. Some of the teeth were badly ulcerated, while others were roots difficult of extraction.

Dr. A. W. Sweeney, of Washington, D. C., explained the use of his new root trimmer, shaping the root of a second superior bicuspid in the mouth of Dr. E. W. McKigan, of Paterson, N. J. As the root canal was considerably enlarged by decay a small amount of cement was introduced and a small hole made in the centre of the cement, so as to afford a suitable rest for the point of the instrument. Had the canal been of normal size this would have been unnecessary.

The instrument slips on the handpiece of the engine and is provided with a pivotal point capable of adjustment, both parallel with and at right angles to the burr in the handpiece, the parallel adjustment being accomplished by means of a telescoping point carrying the pivot, and the adjustment at a right angle being secured by moderate pressure with the forefinger or thumb on a handle which is hinged upon the outside of the case which slips over the handpiece, thus admitting of an eccentric motion which enables the operator to easily and safely follow the outline of the root, regardless of its shape.

The straight form of the appliance can be used on the ten anterior teeth of the upper jaw, and from eight to ten of the inferior set, the molars being reached by the same appliance adjusted for use on the right angle.

Dr. F. A. Comy, of Doylestown, Pa., assisted by Dr. H. C. McBriar, of Middletown, N. Y., gave a clinical demonstration in ceramic dental art, making an all-porcelain crown and also a porcelain bridge of two bicuspid teeth. Both pieces were baked in the McBriar Electric furnace.

Dr. L. S. Ayers, of New Brighton, Staten Island, filled a posterior approximal and crown compound cavity in the first upper molar, using S. S. W. crystal mat-gold, slightly annealed, and by hand-pressure entirely, finishing with sand-paper disks. At this clinic I demonstrated my method of using a cold blast by means of nitrous oxide gas to prevent heating the tooth by the friction of the rapidly-revolving sand-paper disk.

Dr. Truex had a patient here and showed a case of replantation performed twenty-seven years and five months ago, a right superior lateral. It was in good condition, firm and solid, and did good service.

Dr. J. Foster Flagg, who was not on the programme, gave a very successful and interesting demonstration of the dental helix. I believe that it is one of the systems of cataphoresis for obtunding sensitiveness in teeth. Personally I did not have the opportunity of observing it, but I heard that in twelve seconds Dr. Flagg accomplished as much as has been done by other means in fifteen minutes.

Dr. L. C. Le Roy, of New York, gave two clinics, of which the first was entitled: "A method of curing by cleansing, aseptising and permanently filling putrescent or suppurative pulp canals at one sitting *that has not shown a failure in three years.*" The operation was performed for Dr. W. A. Campbell, of Brooklyn, N. Y., and the operator would like those interested to note the future of the case.

Case: Superior central incisor, left side. Some peculiarities developed in diagnosis. Tooth, very opaque upon transmission of reflected light; quite badly discolored. Slight soreness peculiar to diseased pulpless teeth. No fistula present. Dr. C— gives as previous history that the tooth has been in condition as indicated externally for many years. Pulp canal never been entered previously.

After placing on the dam, the operation consisted of opening into pulp canal. Putrescent odor markedly present, with dark, watery pus.

Not the slightest pain was experienced until the broach was inserted about one-half the length of tooth, when shock was felt, living pulp encountered.

Hemorrhage followed; applications of 50 per cent. sulphuric acid for a few minutes caused anaesthesia and allowed of removal of remaining pulp tissue.

Followed this treatment with a solution of sodium bicarbonate until chemical action ceased.

Pulp canal then freed of fluid. No real effort at drying, because the moisture left in the canaliculi acts as an auxilliary and permits of more perfect sterilization by the carbolic acid, C. P. (delaquescent crystals), which was used next.

This allowed to remain *in situ* until the permanent pulp canal dressing of eucalypto-percha was prepared, which is done for each such operation by using any of the low heat gutta-perchas with eucalyptus oil (in glass watch crystal) as a solvent. Tooth then dried thoroughly with bibulous paper canal points, hot-air blast from syringe and Evans' nerve canal dryer.

This *positively* accomplished, the eucalypto-percha dressing in very plastic state was inserted with smooth broaches until the canal was filled; followed this with a few fibers of cotton carried to the apical foramen and compacted; followed this with a gutta-percha canal point, of the proper diameter, to admit of being carried to, and compressed in canal beneath cotton, which forces the excess of eucalypto-percha from canal into pulp chamber.

That which remains is taken up by the g. p. point immediately, which expands a trifle (the reverse of chloro-percha) and most positively fills the root canal. Any oil which remained was removed with alcohol and the cavity lined with phosphate.

The doctor's second clinic was:

"A method of obtaining plaster-of-Paris impressions and occlusions of the teeth simultaneously for crown or bridge cases, producing models with all the parts in perfect condition."

Operation performed for the patient; first noting condition of all parts, paying attention to the teeth on side of mouth opposite to that of which the impression was desired, as those parts must be the guide when teeth are occluded, while the plaster-of-Paris is hardening. Required the patient to open and close the teeth several times so that he closed intelligently when finally required.

In this instance a substitute for impression cup—yellow bees wax (sheets)—was used. The impression cup being improvised of the desired shape and size.

The Doctor cut from a sheet of wax, six inches long, a three-quarter inch strip and united the edges, making a ring oval in shape divided midway, with a septum of wax, causing it to adhere to the ring with melted wax. This made a double impression cup or plaster receptacle.

The plaster was prepared and the required quantity placed in one side of the wax receptacle and a similar quantity in the opposite side. The whole being placed in the mouth, the patient

was requested to close the teeth, biting *through* the wax until the teeth antagonize as they would in repose; opening the mouth fractured the plaster. The parts were removed and subsequently inserted into the wax cap, pieces secured by melting the wax cup at places to hold together, varnished and placed in an articulator, both impression and bite being filled at once.

A highly instructive and scientific paper, entitled "Notes on Enamel and Dentine," was read by Mr. C. S. Tomes before the Odontological Society of Great Britain, and published in the transactions of that Society for February. Mr. Tomes was led to undertake this investigation by a study of Dr. Black's experiments published in *Dental Cosmos*, and while agreeing that Dr. Black's conclusions are in general to be relied upon, yet claims that more exact results may be arrived at by some improvements in the technique adopted. Dr. Black's method in examining specimens of dentine was to take slices from the necks of teeth, dry them at 100° C., and then incinerate them in a platinum crucible, the loss of weight being taken as organic matter. Mr. Tomes sawed across the teeth at the necks, drilled out the dentine with a spear-pointed drill, care being taken to drill out dentine only for examination. These shavings were dried in an even temperature of 100° C., for eight hours, weighed in a platinum crucible, ignited and weighed again. In order to restore any carbonic acid driven off by ignition the ash was moistened with ammonium carbonate, then dried and weighed again. As the turnings were not removed from the crucible during the experiment, and as about twice as much dentine was available by this method, it was claimed more accurate results could be obtained. Mr. Tomes' experiments do not confirm those of Dr. Black, in which teeth from the same mouth differ more in their percentage of lime salts than teeth of good and fair quality from different mouths. From an examination of several jaws Mr. Tomes found that the corresponding teeth on opposite sides of the mouth gave the same results in every case, and also that the dentine of bicuspids and molars is more highly calcified than that of the incisors and canines. The one set of imperfect teeth examined gave lower percentages for all the teeth than the other more perfect sets, whereas Dr. Black's experiments went to show that teeth of poor quality are as highly calcified as those of good quality.—*Dominion Dental Journal*.

OUR QUESTION BOX.

Query.—*When large approximal cavities, extending to the gum border, occur in adjacent molars or bicuspids, is there any good reason why they may not be filled as one cavity, and the two teeth be thus united with the filling? (2) Have you done this; if so, with what result? (3) Would you use gold, or amalgam?*

(1) No one should find fault with such an operation. (2) I have often performed it for years past with great success. (3) I have always used amalgam to an extent to which your queries are merely an introduction.

Among dental operations there is scarcely one more wonderful than this. The skilful union of two or more dilapidated teeth (by filling as firmly upon the gum as within the cavities) is no mean achievement.

J. W. Clowes, New York.

In reply to question (1) Yes; distinct and separate motion would cause loosening of plug, thereby leakage. (2) No; have seen it fail. (3) Of course, neither.

E. T. Rippier, Brooklyn.

I once heard a gentleman condemn bridge-work *in toto* for uncleanliness, and at the same time acknowledge that he often united two or three teeth by the process of filling. "Consistency, what a jewel thou art!"—especially when well practiced. I frequently connect deciduous teeth (using gutta-percha), but would condemn it as a permanent method, not only for the same reason my inconsistent friend gave for bridges, but another: In the process of mastication there always is more or less movement to each individual tooth, consequently one or the other filling must become loosened.

J. P. Geran, Brooklyn.

(1) Yes, it is opposed to accepted methods, in that it would invite septic conditions which would inevitably lead to recurrence of decay at the cervical edges. (2) No.

John Coyle, D.D.S., Thomasville, Ga.

(1) Consider the circumstances contrary to filling as suggested, because the cushion-like articulation permits of some movement of the teeth, and the alternate pressure employed in inserting any filling, even though the teeth were wedged, would militate against its stability, and the same difficulty would arise subsequent to its insertion. If the fillings were stable, a pocket would be created which would destroy the contiguity of labial and palatal gum tissue, and all the incidental ills would arise. (2) Prejudice against the operation would deter me from performing it until I had found it successful in the hands of very trustworthy practitioners.

John I. Hart, New York.

(1) My objections are these: 1st. In operative dentistry a filling is inserted to prevent future decay and restore a tooth to a normal form as nearly as possible. 2d. It is not artistic. 3d. A recurrence of decay is more probable, as the V space at the cervico-approximal margins for the free passage of the fluids is closed up. (2) I have joined fillings, in a few instances, for a special purpose, at the ascending third or section, leaving the V-shaped space at the middle and cervical thirds or sections. (3) I use amalgam to make the joining, if not the entire filling.

George Evans, New York.

(1) Yes, because each tooth should have its normal mobility. (2) Have done it in temporary sets; works out. (3) Amalgam.

Morrison, St. Louis.

I do not think that such fillings as are described by query No. 1 may not be performed, if the material used be gutta-percha. There is a slight movement of the teeth in their sockets (what is known as "*gomphosis articulatum*"), which I consider would prelude the use of any rigid material in such cases. Nevertheless, I have on two occasions filled adjoining cavities with amalgam. One of these cases, however, was not such as is described by query No. 1. They were two comparatively small cavities, on the proximate surfaces of two lower bicuspids. These teeth had been widely separated, on the permanent separation principle, but gave the patient so much discomfort from the impaction of food, that I filled them in this way as an experiment. The report of the patient, after they had been thus filled over six months, was that the teeth were very comfortable, and that he had had no further trouble. The other case was for a relative, whom I see frequently. These were large cavities in the first molar and second bicuspid, and although done over three or four years, she has never reported any trouble. Some of my *confreres* tell me that they almost invariably use amalgam in this way in the large proximate cavities so frequently found in the temporary molars.

I have frequently bridged spaces between such cavities with gutta-percha, using as an offset against wear a gold cap with loops beneath to hold it into the gutta-percha, such as has been recommended by Dr. Bing, of Paris; but I have never used any rigid material like either gold or amalgam, except as in the cases cited.

Theo. F. Chupein, Philadelphia.

The principal objection lies in the fact that such a filling compels both teeth to move in unison during mastication, and hence leads to (a) inflammation of the pericementum of one or both teeth, or (b) the loosening of one or both fillings. I have never done this kind of work in permanent teeth, but ten years ago I saw much work like it done by an "old-timer," and in my judgment it did not prove satisfactory.

Lewis Ottoffy, Chicago.

(1) If the teeth can be individually restored to a perfect contour, and mouth is otherwise healthy, it would be an uncalled-for and, frequently, an unwise operation; if, however, the teeth are so badly broken down that a perfect restoration seems almost impossible, and especially if any pyorrhœal condition exists, then it becomes *the operation to do*. (2) Frequently, and with invariable success. (3) Amalgam. If it is desirable, the filling can be completed with gold; the combination of the two gives the best result.

M. L. Rhein, New York.

(1) DECIDEDLY, yes. Consider it very bad practice; leaves a pocket between filling and gum for retention of food, and favors disintegration of tooth substance. (2) No. (3) *Would depend on circumstances.*

J. Allen Osmun, Newark, N.J.

I never have done it, though I think that it would be good practice, under some conditions, to do it in the temporary teeth. Under such conditions I should use amalgam.

A. H. Gilson, D.D.S., Boston.

(1) No and yes. As far as the operation goes, no; as to the success of it, yes. It is contrary to experience and common sense. (2) No; but have

seen lamentable failures in such operations performed by both reputable dentists and quacks.

F. C. Walker, Brooklyn.

(1) If the teeth need the support which comes from being united, they may in many cases be successfully done in the above manner. If the teeth are firm, I should prefer to put in contour fillings. (2) I have united temporary molars with gutta-percha with good results. (3) Should use either gold or amalgam, or both, as the case required.

Wm. P. Cooke, Boston.

(1) Do not practice it because of a disbelief in its practicability. Can recall to mind two cases done by others: 1st, approximal cavities in left superior centrals and laterals done with gold, a complete failure; 2d, left inferior molars and second bicuspids, done with amalgam by a celebrated New York operator, partial success, only the bicuspid needing repair. 2d and 3d queries I think are answered by the reply to first.

W. A. Campbell, Brooklyn.

(1) Such venary or geminated fillings might be permissible for bridging an inter-space; for the support of either or both loose teeth; for regulative anchorages; for utilizing the inter-space as affording room for the formation of either a fixed or removable bridge-post socket, or for subsequent separation and close contouring. In every case, contact with the gum should be by a mere V point or line. (2) In fact, the after-separation and contouring has been my practice, because such artificial ankylosis seemed theoretically unsound, and resultant benefits dubious. (3) Generally amalgam, occasionally gold by means of a specially adapted matrix.

W. Storer How, Philadelphia.

Do not think it advisable in ordinary cases. Think there is danger of causing inflammation unless more than ordinary care is used in polishing. Would not do it for permanent teeth except for supporting a loose tooth having an approximal cavity; otherwise would band. If amalgam is used, it must be strengthened by a platinum-iridium wire. Have had them break apart if wire was not used. Think it is admissible in temporary teeth with gutta-percha. (2) Have used only plastic fillings for this purpose. (3) Should think where it was advisable to use gold that better operation would be performed.

George H. Wells, Augusta, Ga.

In my opinion there are more good reasons for not uniting teeth in the manner described than it would be possible to enumerate on this small card. In consideration of which I can simply answer, as a practice, Yes; in special cases, No. I have performed the operation with the most satisfactory results, and shall be glad to resort to it again where conditions will warrant it. I have used both gold and amalgam, but prefer the latter.

F. T. Van Woert, Brooklyn.

I have heard of such operations upon deciduous teeth, but do not know whether they proved to be of any advantage over separate fillings. I have seen such operations with amalgam in adult teeth, but in every case, after a few months, I found leakages had taken place at points near the gum where food had collected about the bridge-filling, just as I have noticed is often the case with some kinds of bridge-work carrying artificial teeth. I never have done any of this kind of work. Do not believe in it at all. All teeth move in their sockets when masticating food, and therefore any kind of operation in which this movement is not allowed for, I do not think is scientific.

J. N. Farrar, New York.

I should think the use of any metallic filling in this manner would be very likely to prove a failure. The fillings would soon become loosened by the unequal movement of the teeth in their sockets; the connecting portion would be very likely to irritate the gum above it, and would be difficult to cleanse. (2) I have never done it, but have seen two cases of the kind which gave the wearers much annoyance. (3) I have long practiced this method in temporary teeth, using gutta-percha, and, so far as observed, with excellent results.

A. H. Brockway, Brooklyn.

(1) Would not hesitate so to do at any time. (2) Have had good results from such practice. (3) Amalgam every time.

C. F. Wheeler, Albany, N. Y.

(1) Yes; a good reason why they should not be filled *a la Siamese twins* is the fact that nature did not evolve that way, and give us a solid arch or crusher *a la* clam cracker. The teeth of the genus *homo* are ever changing and moving, also their occlusion; so nature, who has done some things wiser than the dentist, made the teeth narrow, separate and round, so that the arch could easily accommodate itself to this ever-changing condition, which is caused by development, wear, friction, the alteration of the angle of the jaw with age, the pressure forward of the *dens sapientiae*, the loss of a tooth, etc. If two molars are joined, they cannot accommodate themselves to these changes of the occlusion, hence the filling will in time break from its hold in one of the teeth, or the teeth will become sore and useless. Again, under the filling will be a very unpleasant and uncleanly space, and no way to clean it.

(2) Yes; where a tooth is loose adjacent to a firm decayed tooth, I have joined to stop the movement, but I also destroyed for a time its occlusion. Result, as an expedient for a short time, good; but as a lasting and nice operation, *poor*.

(3) If I advocated this condition I would use amalgam, as its strength is greater; but I do not advocate it, and I fill all such as mentioned in query (1) with gold if I can, using soft gold, hand-pressure up along the edges near the gum, and the balance as suits me—using double matrix and restoring out in contour all that I have been forced to cut away.

C. Bunting Colson, Charleston, S. C.

I cannot understand how a dentist of average ability should ever find it necessary to perform such an operation upon the permanent teeth. Failure will be the result in all cases.

William Conrad, St. Louis.

(1) If the cavities alluded to in query involved the bicuspids or second bicupid and first molar, in the mouth of a young person in whom the maxillaries had not fully developed, I would *not* unite teeth by so filling. If, however, the patient were an adult, with teeth, or tooth, loose from pyorrhœa, much benefit would be derived by uniting teeth in such a manner. Steadiness is absolutely necessary to successful treatment in loose teeth, thus allowing the pabulum to undergo progressive metamorphosis. (2) I have united teeth as above with both gold and amalgam. Prefer the latter, as gold is exceedingly difficult to finish when so used. (3) Ordinarily I would fill such cavities with gold, using tin and gold in bottom of cavity, put on separator and knuckle up.

R. C. Young, Anniston, Ala.

I never did unite two approximal fillings, and would not recommend it, although in the hands of some it might be a success. If I did it at all I

should use gold, because, I think, being more dense, it would be less liable to move. It seems to me it would be difficult to keep the parts free from food, and decay would go on more rapidly at the margin than if they were separated. About fifteen years ago I removed a copper filling put in (united)—one bicuspid was gone and the other decayed at the margin. I do not know how long it had been in the mouth.

H. A. Parr, New York.

I have never tried filling two teeth as one cavity, but fear that the movement of the teeth in their sockets would loosen the filling or break the teeth.

D. D. Lester, Christiansburg, Va.

In my opinion such an operation with any kind of filling material would be malpractice. In all probability one or both teeth would soon loosen from the plug, and in any case the gum below the plug would become diseased, a constant source of annoyance, and a pocket of filth.

E. C. Chase, St. Louis, Mo.

One of the best ways of preparing a set of dies (if one has not a set of steel dies or a die-plate) is to collect sound, natural teeth of good shape and set them in fusible metal. This may be done by placing the tooth slightly in King's Crown Composition with the roots upward. A band of gilding metal is placed around the roots and pushed a little way into the composition, and being sufficiently tall to be well above the roots. Fusible metal is then poured into the ring until filled, and when cooled the made die is removed and fitted to a steel punch in which it is best used. Thus the striking face consists of a natural tooth and the body of fusible metal.

If a crown is to be made to a model of an awkward root requiring a lot of fitting, the root may be made of metal to avoid the model being rubbed. Fit a collar of matrix metal round the root and solder. Do not cut off the ends, but press composition around root and collar, and let the patient bite on it. When hard, take out and bring the collar out in the composition; fill the collar with wax and set a pin in it with the head buried in the wax. Then make a plaster model of upper and lower; wash out the wax from the plaster model, and dry. Then make a small hollow in the plaster model within the cap and pour in soft metal until the collar is full; when set, remove the collar, and one has a fusible metal cast of the stump which is removable. When placed on the model it is kept firm owing to the pin and hole in the plaster.—*W. R. Read, British Journal of Dental Science.*

CURRENT THOUGHTS.

CHLOROFORM OR ETHER?

By John Freeman, F.R.C.S., Ed.

The question of which is the best and safest general anæsthetic continues to be constantly brought under the notice of the profession by the frequent occurrence of deaths during anæsthesia. The fact that opinions are still so divided shows that a good deal can be said in favor of both chloroform and ether; but one thing stands out preëminently, and that is, that when deaths do occur they are nearly always where chloroform has been used. It is also fairly evident that, so far, experiments on animals have not helped us much in coming to a right conclusion as to the safest anæsthetic to use for the human subject.

Chloroform. One of the great advantages of this agent, and, I believe, reasons, speaking generally, why so largely used, is the very simple way in which it can be given, even by one who has had very little experience in anæsthetics. It is also fairly pleasant for the patient to inhale, and, in the great majority of cases, it answers the purpose admirably; but these advantages are counteracted by the treacherous way it acts in some instances.

A few of the deaths reported lately are good illustrations of the different ways in which chloroform appears to kill. Some of the patients were obviously not fully under the anæsthetic, as they were said to have "struggled, evidently feeling the pain," and immediately afterward the heart and respiration stopped. Others, in going under, struggled violently and suddenly died. Another died just after he had been lifted from one place to another; while another succumbed apparently because the chloroform was administered to him whilst he was sitting upright.

It is not my intention to attempt to criticise the method in which the anæsthetic was given in these cases, because I think the whole circumstances should be taken into account. For instance, the nature of the operation may demand that the patient's head be raised, or it may be quite necessary to lift him from one place to another. There is one point I should like to touch upon in connection with these cases, and it is that in those cases which died after struggling it is almost invariably suggested that they died from an overdose of chloroform brought about by the inhalation of a large quantity of the anæsthetic in the deep inspirations that occurred between and after the acts of struggling. To

say this, in any case, is to throw considerable blame upon the anæsthetist, as it means that he gave the chloroform in an unscientific, if not a reckless, manner. That it is possible for a patient to take an overdose in this way no one is likely to deny; but that it is the probable cause of death is, I think, very doubtful. These deaths from struggling have happened in the hands of experienced anæsthetists, who must have been well aware of the fact that any rash pushing of the drug at this stage was particularly dangerous, and there is very little doubt they took every care that no chance of overdose was given.

There is another way of explaining these cases. When a patient struggles he always holds his breath, and it is generally understood that any obstruction to breathing, whether the chloroform is being given at that particular moment or not, is very likely to impede the heart in its action. If the breath is held for any particular length of time the pulmonary circulation and the right side of the heart become engorged, and in this way the heart's action is interfered with. The heart, thus working under difficulties, now has another strain thrown upon it by the violent exertions of the struggling patient. It has been noticed many times that the heart will stand very little extra work in some patients during the inhalation of chloroform. The mere lifting of the patient from place to place, or sitting him upright, have been sufficient to cause death, even when the respiration had been apparently good; but in these cases the respiration is embarrassed and the heart is already weakened by the over-distended condition of its right side.

Why, then, since we have two well-recognized dangerous conditions present, each of which has, in several cases, produced death, must we bring in another cause, viz., the overdose theory, before we can satisfactorily explain these accidents? This overdose theory has far-reaching results, and it is quite possible that it is accountable for some of the deaths that occur in other ways. One not infrequently hears of half an hour or more being taken to get a patient under with chloroform. All statistics show that the going-under period is one of the most dangerous; anyone, therefore, who unduly prolongs this period must subject his patient to unnecessary danger, and this is brought about by the fear of giving an overdose. The same sort of an idea is shown, again, in those cases which die apparently from syncope, through the operation having been commenced before the patient was sufficiently under. Hence, we read of the patient "moving, evidently feeling the pain;" or, again, "the corneal reflex was present." All

such cases as these seem to show that the administrators of the chloroform wanted to prove that the patients did not have an overdose. Dr. Hewitt, in his book on *anæsthetics*, says, "There is about as much risk from administering too little as from administering too much chloroform," and the reports of these cases appear to point to the correctness of his view. Again, if most of the deaths under chloroform are due to overdose, as some seem to think, how is it that accidents happen with those who used inhalers that measured the chloroform vapor given to the patient, and why is it that most of the fatalities did not occur in the practice of those who make a rule of using large quantities of chloroform in their administrations? For instance, one celebrated anæsthesist thinks nothing of using as much as two ounces for a small operation which can only last a few minutes. Have we to go to such as these to find the majority of fatalities? It is more common to read of death taking place after only a small quantity of chloroform has been used. One case was lately recorded where the patient died from half a drachm. In two cases it was noticed that the heart stopped before the respirations, and several others read as though death was due to primary cardiac syncope. Chloroform—in some patients, at any rate—appears to put the heart into a condition of instability; that is, in this state its action is affected, and may be stopped by circumstances which at no other time have such influence on it. Hence, interfered respiration, the act of vomiting, the feeling of pain, etc., have all, in their turn, brought the heart to a standstill.

The large number of deaths that have happened lately in children shows that chloroform is not such a safe anæsthetic for them as was once thought.

Since deaths are so frequent under chloroform, the question ought to be considered whether we are quite justified in employing this agent. It is true the chance of an accident happening in any particular administration is very small; but there is no doubt that in all those cases that ended fatally the anæsthetists thought the same thing, and probably some of them told the patients as much. There are some who, because they have given chloroform a great many times without accident, have come to look upon it as a safe agent; but whilst they have had good luck, others quite as experienced have not been so fortunate; besides, as only a small proportion of patients die in this way, many anæsthetists will chance to have a large experience without a death. But, at the same time, since we have no means of telling which patient will take chloroform well, and which one will die from it

—a strong, healthy man being just as likely to fail as a weak one—it is doubtful whether we are doing the best for the patient when we proceed to give this anæsthetic, unless there is some special reason why it should be the one selected.

Ether. This anæsthetic appears to be becoming more generally employed every year. There are several reasons why it is not used more. It requires an apparatus for its administration. Some might say this ought not to be a reason; but, still, one may be called suddenly to give an anæsthetic where there is no ether apparatus, so chloroform has to be resorted to. Another reason is that ether is a little difficult to give. While one who has never administered an anæsthetic before will be able to get a patient under fairly easily with chloroform, this is not usually the case with ether. Great difficulties may be met with by the beginner, and with a strong patient there would very likely be failure. Ether is not pleasant for the patient to take, and it is said not to relax muscles sufficiently in some cases. The most important objection, however, and the one which chloroform advocates use against it, is in its after-effects, particularly in regard to affections of the air-passages. These points about ether are worth some consideration. The difficulties connected with its administration are, to a great extent, preventable; it can be given in such a way that thirty or forty cases in succession will take it without there being struggling or any other difficulty; and when one sees a very muscular man go under without moving so much as a finger, as is frequently the case, it is difficult to believe that he is experiencing any very great discomfort. The causes of struggling, etc., are sometimes fairly obvious, and may be due to too strong a vapor being presented to the patient at the commencement of the administration. The patient, finding it impossible to breathe this, although he may try his utmost, naturally begins to struggle for breath. Another cause is, that the ether is sometimes commenced when the bag is only half full of air, and some that is in it will very likely be allowed to escape, through the face-piece not being applied properly; so, in a minute or so the bag is empty. The patient tries to take an inspiration, when the bag collapses, as there was so little in it. Under such circumstances, is it surprising that the patient, finding he cannot get air to breathe, should struggle? Again, giving too much fresh air at an early stage of administration is a frequent cause of struggling. You may see a patient begin to take ether perfectly, and he may have got to the stage where consciousness is just being lost, the breathing being rapid, and forcibly expanding the air-bag at

each expiration. At this period, should the anæsthetist unguardedly allow two or three breaths of fresh air, trouble may be expected. A small quantity of fresh air at this stage will restore the patient's consciousness, and bring back sensitiveness to his air-passages. On the inhaler being re-applied, the patient instantly holds his breath, he feels and realizes the pungency of the now somewhat strong ether vapor, and struggling, vomiting, and other troubles rapidly follow each other.

Such points as these make all the difference to the sensation experienced by the patient, and very little practice will prevent those who are learning to give anæsthetics from making such mistakes. This is why I hold that students should have the opportunity given them of learning to administer ether. When they get into practice they can please themselves whether they precede the ether with nitrous oxide, or use a little A.C.E. mixture until the patient is becoming unconscious. These are only details; the important thing is that they will feel capable of administering properly what in future will most likely be considered the safest anæsthetic. I do not agree with those who say that ether will not sufficiently relax muscles for some operations. I believe that continued rigidity of the muscular system depends much more upon how the ether is administered than upon any peculiar idiosyncrasy of the patient, and I never meet with cases in which I cannot for all practical purposes completely relax the muscles. All patients, in going under with ether, pass through a stage in which there is more or less rigidity. This passes off in most patients in a minute or two; but there are two classes of individuals—the alcoholic and the very muscular—in which this may not happen. These remain rigid for some time; and you may have the ether on full, and limit the supply of fresh air to a large extent, and yet the spasm continues. These are exceptional cases and they require different handling, but it is a mistake to think that nothing more can be done to get them under. The appearance of the patient in this condition gives one the key to the difficulty. The muscular spasm is a general one, and so the muscles of respiration are included. The result of this is, that the patient becomes deeply cyanosed. On giving a plentiful supply of fresh air to remove this cyanosis, one notices at the same time that the muscles begin to lose their rigidity; so in these cases, when I find, after a good trial of ether, that the muscles do not relax, I remove the inhaler altogether, and let the patient have fresh air until his normal color returns and the rigidity begins to subside. Of course, this procedure brings the pa-

tient half round from anaesthesia, and his reflexes become active again; so, on re-applying the inhaler, it is very necessary to begin with a weak vapor; a strong one, by causing holding of breath, etc., would bring back all the rigidity in a very short time. I have not met with a case yet which failed to go under completely on this second attempt; but, necessarily, the time taken to get one of these patients under is much longer than in an ordinary case.

With regard to the after-effects of ether, there are only two worth considering. The first is vomiting. In comparing the vomiting that takes place after ether with that of chloroform, so far as I have been able to observe, there is very little difference between the two. More patients vomit after ether than after chloroform; but the ether vomiting generally passes off more quickly. That long-continued vomiting, going on into the second or third day, which now and then follows chloroform, is very rare after ether.

Now we come to the chief objection to ether as an anaesthetic, viz., that it sometimes produces affections of the air-passages; were it not for the possibility that ether may indirectly cause death in this way, chloroform would have been doomed long ago. Unfortunately, it is impossible to speak definitely about this point, because there may be other causes to produce these troubles at the time of an operation besides the ether. I have made enquiries on this subject from those of experience, and the general opinion is that chest affections resulting from ether are extremely rare. Dr. Hewett, in dealing with this subject, says: "There has undoubtedly been gross exaggeration." My own experience is a little interesting. In 1,600 administrations of ether to patients of all ages, from six weeks up to eighty years (many of them, too, were in long operations lasting two or three hours), I have met with one patient who had some bronchitis after. This was a woman aged twenty-three, who, however, made a good recovery. The anaesthetic received all the blame; but I have also had a case in which bronchitis followed an operation in which chloroform was the anaesthetic. In this case, however, the bronchitis was looked upon as a sort of coincidence, or, perhaps, due to the exposure of the patient during the operation (one can make a very good guess as to what would have been thought if ether had been used in this instance). One other case I have met with gives a good illustration of how easy it is to blame ether for what it does not deserve. It was a child six years old. Its nurse had not noticed anything the matter with

it, and there was nothing definitely wrong with the chest. I used A.C.E. mixture, and in going under the child coughed several times, which made the operator remark, "the ether was making the child cough a good deal." For some days afterward the cough was very troublesome, and was still supposed to be due to the "irritation of the ether;" but on the sixth day after the operation the child developed a characteristic "whoop" with its cough, and after this it went through the ordinary course of whooping-cough. Ether has been given at this hospital, by others, many hundred times, without there being any other case in which it was suspected to have caused any chest trouble.

From such experience as I have had of these two anæsthetics, I cannot help thinking that a patient is in a much safer condition under ether than under chloroform. With ether, so long as the patient is kept sufficiently under to prevent holding of breath, vomiting, etc., there is no trouble, and one can depend upon having a good warning if the patient is not quite satisfactory. Up to the present time, no patient under ether has ever given me the least anxiety. I cannot say this of chloroform. Sometimes, with a cause such as putting a gag into the mouth, or placing the strap of Clover's crutch round the back of the neck, and sometimes without any obvious reason, I have had patients who were in a condition of considerable danger. Because of this, I now make a rule of always using ether, unless there is some reason for its contra-indication.

Sir B. W. Richardson, in a recent article on chloroform deaths, writes: "There are certain persons, say about 1 in 3,000, who at all times are ready to die." He has designated them "the morituri," and says they are the common victims of chloroform. If this is the real explanation of these deaths, it is one more reason why ether should be used, because, whilst chloroform is constantly finding out these cases, ether scarcely ever does so. If, as statistics often show, in 10,000 administrations of chloroform four such deaths occur, and in the same number of ether cases no such accident happens, there must be some very important difference between these two drugs.

I think we have not to look far to find the reason of the greater safety of ether. The full-bounding pulse of ether anæsthesia shows how much the circulatory system is stimulated by it, and the rapid and deep character of the breathing proves the same influence on the respiratory organs. So if, instead of using an anæsthetic which has a tendency to depress both the respiration and the circulation (as chloroform has), we employ one that

has a directly stimulating effect, we are much more likely to tide these "morituri" over their operations.—*The Bristol Medico-Chirurgical Journal.*

THE FORMALIN TREATMENT OF WOUNDS.

If a watery solution of gelatine be allowed to dry in formalin vapor, the gelatine loses altogether its customary characteristics. It is no longer affected by hot or cold water, nor by steam, nor by acids, nor alkalies; and the formalin which has entered into combination with it is chemically inactive. Experiments upon animals, however, prove that by the action of the living tissues the combination is broken up and formalin set free. Further experiments upon pigeons and dogs revealed the fact that if formalin gelatine is ground to a fine powder, mixed with colonies of bacteria (staphylococci, streptococci, chicken cholera), and introduced into the animal, the germs are unable to grow and the wounds heal without reaction.

This result is apparently due to the action of the freed formalin, an action which continues for some time—several hours, probably—and therein lies an advantage of this new material over all the old antiseptic agents. Schleich (*Theapeut. Monatsch.*, February, 1896) asserts that with the help of this material every acute suppuration can be stopped in twenty-four hours, and every wound can be made to heal antiseptically without further trouble. He has proved this by its use in 120 cases of acute suppuration, 93 aseptic wounds, 4 compound fractures, and 2 deep wounds of the scalp. In his experiments the principles of aseptic surgery were in all respects observed, except as to the wounds, which were only mechanically cleansed and thoroughly rubbed with the powder. In every case suppuration was stopped in twenty-four hours, and even the compound fractures healed without any fever. In fresh wounds the powder made with the blood a firm aseptic scab.

In order to be of service the powder has to be brought into contact with sound or inflamed tissue. In the presence of necrotic masses, or in the specific inflammations of syphilis and tuberculosis, it has very little effect. In order to produce a continuous supply of formalin vapor for the treatment of ulcers, etc., it is possible to digest the formalin by a pepsin-hydrochloric acid solution. The formalin-gelatine powder is first dusted on the wound, and then covered with a compress wet in a watery

solution containing 5 per cent. of pepsin and 3 per cent. of hydrochloric acid.

The powder is made by drying 500 grams of purified and dissolved gelatine in the vapor of 25 drops of formalin. The gelatine is then rubbed to a powder and preserved in the presence of a single drop of formalin solution.—*Medical News*.

A SAFE METHOD OF PRODUCING ANÆSTHESIA.

It is a fact well known in the medical profession that until within a few years chloroform has been the agent almost universally employed by English surgeons to produce anæsthesia, while American practitioners have relied almost exclusively upon ether. It is still a moot question which is the better anæsthetic, all things considered; but there has been some yielding of prejudice of late in both countries upon the disputed point. When doctors disagree, it is sometimes for the patient to decide; and this subject is one which, at one time or another, has a direct personal interest for a very numerous section of humanity. The popular objection to chloroform in the United States is based upon the belief that it is a more powerful and a more dangerous drug than ether. More powerful it undoubtedly is, and more dangerous in unskilful hands. The problem before several English boards of experts has been how to eliminate the danger or reduce it to a minimum so small that it can be ignored. An important contribution to our knowledge on this subject has just been made, and it is of as much interest, perhaps, to dentists as to physicians.

It was announced as a discovery about eight years ago that death from chloroform always commenced with failure of the respiration, never with failure of the heart, and that if the breathing were watched by the administrator the pulse might be ignored. Surgeon-Colonel Lawrie, of the British army, first put forward this statement as the result of his observation and experiments in India. A commission appointed by the government investigated the subject in that country. It made a great number of experiments upon animals, from which it concluded that it was impossible for chloroform vapor to kill a dog by acting upon the heart, and that death from chloroform in dogs was easily avoidable, and ought never to occur. It argued that the same thing must be true of human beings. The conclusions of the commission were not received with full confidence by the medical pro-

fession, and a second commission was appointed and more elaborate tests were made. After about 600 successful experiments, the second commission reached opinions which were thus summarized:

"The administrator should be guided as to the effect entirely by the respiration. His only object, while producing anaesthesia, is to see that the respiration is not interfered with. The commission has no doubt whatever that, if the above rules be followed, chloroform may be given in any case requiring an operation with perfect ease and absolute safety so as to do good without the risk of evil."

But even this good news was not received with full faith. Too many medical men had seen or heard of cases which seemed to prove that chloroform was not an agent over which they had complete control. It was suggested that perhaps results obtained in India could not be accepted as a criterion of practice in the temperate zone. So another board of investigation, working under the auspices of the *Lancet*, has been engaged for months past in an exhaustive inquiry. Its members have investigated carefully no fewer than 716 deaths from chloroform, and their report tends to re-establish the former reputation of the drug.

It presents three series of cases: Series A, derived from the report of the committee of the Royal Medical and Chirurgical Society, contains 86 cases of death under chloroform; series B, derived from an analysis of the fatalities recorded between the years 1860 and 1891 in various British and foreign publications, contains 596 cases, and series C, derived from the inquiries made by circular, contains 27 cases from hospitals and seven from private practice. All these were carefully examined in such a way as to eliminate, as far as possible, the personal beliefs of the examiner, and to preserve only what had been placed on record by competent persons who were present when death occurred. According to this testimony, in the 716 deaths from or during the administration of chloroform, the pulse (in other words, the heart) was observed to fail first certainly in 183, and probably in 44 more, or more than 31.5 per cent. The respiration was noted to fail first certainly in 73 cases, and probably in 7 more, or only about 11 per cent. Both functions are said to have failed simultaneously certainly in 58 cases, and probably in 19 more; and in 332 the point was not noted with sufficient accuracy to justify the statement of any conclusion. But the fact remains that, in nearly one-third of the whole number of fatalities, the recorded opinion of those present was in favor of the result

having been due to failure of the heart rather than to failure of the respiration.

It is pointed out, also, that experiments on animals are apt to be misleading, because the subject selected would usually be healthy, while most human subjects in the operating room are diseased. It is suggested, also, that deaths during surgical operations not of a severe kind sometimes occurred before the discovery of anaesthetics, and were vaguely attributed to shock. The cause, whatever its nature, probably still exists, and its victims are now charged to anaesthetics.

The objection to ether as an anaesthetic by most English surgeons has been based chiefly upon the slowness with which it operates and the distress which its administration causes to many patients. Both these disadvantages have now been overcome by combining nitrous oxide (laughing gas) with the ether fumes until unconsciousness is produced. Instead of the ether cone an apparatus similar in some respects to that in a well-equipped surgeon-dentist's office is employed. The patient breathes easily into the mouthpiece, the first three or four inhalations being of the gas alone. The ether fumes are gradually substituted. In two minutes the patient is unconscious, and there is no choking or distress such as the ether alone often produces. The latest report upon the possible dangers of chloroform is likely to lead to the rapid introduction in this country of this new and safe form of anaesthesia.—*London Correspondent.*

CARE OF TEETH IN CHILDHOOD.

By Dr. W. E. Grant.

We should begin early with the deciduous teeth and aim to keep them constantly under our care. The parents should be instructed to send their children to the family practitioner at least every six months. Except in rare instances, deciduous teeth should not be extracted until absorption has been completed and nature has practically thrown them off, or, failing to do so, demands assistance. It is well known that in the alveolar ridge, as in a stone arch, the removal of one part allows the rest to fall in, and that when a tooth has been prematurely extracted there is less room for the eruption of the permanent one in its place. The incoming tooth has to overcome not only this difficulty, but is also deprived of the nourishment it should receive in the decalcification going on about it. The deciduous teeth are not very sen-

sitive until about the fourth year, when decalcification begins, after which the roots have jagged, sharp points, which may be the source of trouble. Mothers should be advised of these facts so that they may restrain their children from crushing hard substances in the mouth. Nuts and cheap candies are very injurious in this respect.—*Dental Digest.*

INCISIVE CONTOUR RESTORATION.

By Robert D. M'Bride, D.D.S., Detroit.

One of the most perplexing cases that presents itself to the dentist is the restoration of the contour of the incisors where some constitutional malady, during the formation of the teeth, has caused a retarded development of the incisive portion.

Frequently extreme cases demand the removal of the natural crown and the adjustment of an artificial substitute; but, unless a jacket crown is used, this is limited by the age of the patient. During youth it is essential to preserve the vitality of the tooth that the process of calcification may be completed.

When such an operation is deemed advisable, the following method has proved satisfactory in the hands of the writer:

The anomalous formation of the individual teeth is ground off, finishing with a flat file. A set of Logan crowns, the proper form and color, are selected and the pin portion is removed sufficiently so that the remaining incisive portion exactly completes the natural contour of the teeth, the final grinding being done on the side of the wheel, thus producing a most perfect union between the tooth and porcelain tip.

Two anchor screws are placed in each tooth on either side of the pulp and two small holes are drilled in the porcelain with a diamond drill for the reception of the extended portion of the anchor screws.

When the porcelain tips are cemented in place, the line of demarcation is wholly obliterated and the operation presents a clever deception.—*Ohio Dental Journal.*

METHOD OF REMOVING COLLAR-CROWNS.

By R. M. Sanger, D.D.S.

Sometimes it happens that "the other dentist" crowns a root which has been inadequately or improperly treated. The result is an abscess or a painful pericementitis. We wish to remove the crown. Perhaps we admit to ourselves in confidence that the crown itself is better than one which we could make. We are in a predicament. From the patient's standpoint at the moment, we have the advantage. She has lost faith in "the other dentist" and has come to us. She is intelligent and fully understands that "the other dentist" is responsible for the abscess which she expects us to cure. We can cure the disease, but if we replace the crown with one of inferior (our own) make we are sure that the intelligence of the patient will be used to our disadvantage. There is but one way out of the dilemma, and that is to remove the crown so that it may be replaced. This may be done as follows:

With a sharp spear drill, lubricated with glycerine, drill through the backing at a point over the pin. If the drill is well tempered this will not be very difficult. Enlarge this hole slightly with a round bur, then with a wheel bur cut the pin free from the cap. The crown can now be worked off without mutilating the band. Next, the pin remaining in the tooth root must be removed. To do this bur away the cement around it with a fine spear-pointed fissure drill, being careful not to cut the metal itself. This should be done to a depth sufficient to allow a firm grasp of the pin with the sharp-nosed pliers now supplied for bending the pins of artificial teeth. Do not attempt to draw the pin out by direct force, but twist it slightly to disintegrate the cement, when it will be found that the pin will come away with little effort. You have thus succeeded in removing the crown without mutilation.

When the root has been restored to a healthy condition, replace the crown, insert a platinum and iridium pin through the opening in the backing which was drilled to release the original post. Fasten into position with hard wax, remove carefully, invest, and solder.

In this way you can preserve the crown made by "the other dentist," with which no fault was found, and after the proper treatment simply reset it, with very little labor to yourself—a good fee and considerable glory.

DANGERS FROM NECROSED TEETH.

Mr. A—— has been under my immediate observation for ten years and his case illustrates very forcibly, at last, one of the dangers of retaining necrosed teeth in their sockets. About nine years ago the second bicuspid of the right upper jaw contained a cavity which was filled with amalgam and shortly afterward commenced to ache severely. He insisted on having the filling removed and the nerve killed, which was done. A few months later the tooth died and blackened and a sinus opened through the gingival mucous membrane in the region of the tooth's root. This state of affairs lasted about two years, when a series of small abscesses occurred on the right pinna which lasted for about one month, and numbered ten or twelve in all. He recovered from the attack and was tolerably comfortable for a few months, when the same experience was gone through with, but this seizure was more prolonged and severe. There were marked constitutional symptoms, and a large abscess made its appearance in the right temporal region. These attacks returned at intervals of a few weeks or months for several years, each one being slightly more severe than the last and finally involved the scalp of the right side. About this time a large abscess made its appearance on the knuckle of the little finger of the left hand and the man commenced to show signs of marked reduction of health and strength. I have inquired of several dentists as to whether they had ever known of a similar case, and they invariably answered in the negative. I further notice that the vent in the mucous membrane closed and it was shortly after such closure that the abscesses made their appearance. At last I decided to have the tooth extracted, which was done nearly a year ago, and since that time the patient has been in perfect health, which was an experience he had not known nearly all the time the dead tooth was in his head.

The root of the tooth was very much softened and roughened, while the tooth-socket and tissues surrounding it were quite sensitive to pressure. To my mind, this was a case of septicæmia, which I can readily conceive to be the result of pent-up pus in the neighborhood of the dead root. I would earnestly recommend the removal of all dead teeth, for while we all know that necrosed teeth may be retained indefinitely without causing trouble in many instances, on the other hand one such case as the above is sufficient to demonstrate that there is always impending danger of either septicæmia, pus in the antrum of Highmore, necrosis of the alveolus, or numerous kindred affections while a

dead tooth is left in the jaw.—*William P. Beach, M.D., in the Brooklyn Medical Journal.*

[The above is extremely interesting as long as the author confines himself to a history of the case. When he advises the extraction of all "dead" teeth we must ask what he intends the expression "dead" to signify. If he means all teeth in which what he calls "the nerve" has been killed, we must take issue with him. Pulpless teeth may and frequently should be retained. In a large majority of such cases it would be malpractice to extract. If, however, we may understand by "dead teeth" those where, after the loss of the pulp, disease has destroyed the vitality of the pericementum, we say most peremptorily that they should be extracted. There should be no exception to this rule. Such a tooth is an offense which nature will not tolerate, and the effort to be rid of the intruder results in the formation of pus which, either absorbed or swallowed, may cause septicæmia as above related. A case has been reported in which septicæmia, traceable to the teeth, resulted in abscesses on the finger, and yet another where abscesses appeared on the femur and great toe.—ED.]

INLAYING TEETH WITH GOLD.

By *Valentine R. Hobson, A.M., M.D., D.D.S., Louisville, Ky.*

A most difficult class of cavities include those in the approximal surface, where the corner has been lost and the upper margin is near or quite up to the gum margin. The difficulty of inserting perfect gold fillings in frail teeth having such extensive cavities has led me to adopt the following method: I take a piece of gold foil, No. 50, and burnish gently in the cavity, trimming the edges of the foil flush with the surface of the tooth, then bend over the cavity and foil a piece of pure gold about 30 to 32 gauge, and trim this so that it will slightly overlap the outer edges of the cavity on all sides. Take this to the laboratory and flow 22 carat solder to fill the space between the two pieces. Insert this, burnishing the edges to fit the cavity margins. To retain it in position use oxyphosphate, mixed thin, flowed over the cavity, and insert the solid plug while still soft. At a subsequent sitting it may be polished as an ordinary filling.

PYORRHœA.

Pyorrhœa alveolaris is a condition of inflammation of the periodental membrane. Members of societies are divided upon the subject whether it is a local or a constitutional irritant that produces it. I heard only two years ago the positive statement on the floor of the American Dental Association that it was *always* an irritation from the outside, which produced this condition; and that it always could be controlled by proper cleanliness and care. This position was taken by some of the best men in that association. I have at the present time a patient under my observation, an isolated case where that theory is disproved. The patient had the pulp of a right upper cuspid destroyed, the pulp chamber filled, and the tooth filled with amalgam, in 1861. At that time the patient was in very good health. Since then he has gone through the war, and has seen a great many hard times; various changes of his life have occurred, and while the pulps of all of the other teeth, or most of them, are alive, the disease that I refer to has entirely destroyed the alveoli and the gums, and most of the teeth are dropping out; while the single cuspid stands there to-day healthy, well and firm. I have shown it to a number of other dentists, notably my brothers, and we have watched the case for several years. There is no question in my mind that there is a constitutional vice of some kind in that man's body, and as long as the blood supply has remained normal, this vice has been carried to every particle of the body that the blood supply reaches. Depriving that tooth of its portion of the blood supply I believe has been the reason why it has not suffered to a like extent with the rest.—*Dr. B. C. Maercklein, Dental Review.*

TEETHING.

I do not believe in scarifying the gums in teething. I do not think it does any good. If it is necessary to use the lancet it is necessary to cut down to the growing tooth; to entirely cut the gum overlying the tooth. If in a single-rooted or pointed tooth, one longitudinal incision is sufficient. If a molar which has four cusps to it, it is necessary to make a cross incision. This incision should run diagonally from cusp to cusp; say from the anterior buccal to the posterior lingual cusp, and from the anterior lingual to the posterior buccal cusp, not simply a crucial incision over the gum, but one that will entirely liberate all the

cusps. The trouble caused by the growing tooth is not in the gums overlying the tooth, but it is in the sac in which the tooth is enveloped. The spasmotic contractions of the sac forcing the tooth forward are greater than the absorptions of the gums in a given case, and the pressure becomes too great on the sensitive pulp at the apex of the developing tooth. That may produce convulsions at any time, but the pressure on the gums could not alone, in themselves, produce convulsions, because the nerves are not sufficiently sensitive or irritative to produce this condition. Therefore, if lancing is necessary, cut down to the growing tooth and liberate it, but do not scarify the gum. You would have simply pretended to do something for the patient, but would accomplish nothing.—*Dr. James T. Stewart, Dental Review.*

PULP TREATMENT IN TEMPORARY TEETH.

It is not necessary that cavities in deciduous teeth should be prepared with as much care as in permanent teeth, since the fillings are to serve but a short time. But the pulp should never be destroyed. The reason is plain, as it is a very difficult matter to remove the dead pulp, and even if absorption has not set in at the time of the operation, it will soon do so and give rise to complications hard to combat. If the pulp is not exposed, do not expose it by excavation. Use a germicide on the remaining decay and fill over it. If the pulp is exposed, the cavity should be made as clean as possible by thoroughly washing with warm water, drying and wiping out with carbolic acid. If there is but a slight exposure, it is well to use a drop of chloro-percha over the exposed point, and to press lightly over this a small pellet of gutta-percha which has been warmed on the heater, filling in above with a thin mixture of cement until the cavity is entirely filled. But if the exposure is larger, the pulp should be capped with a mixture composed of two parts of oil of cloves and one part of a preparation of carbolic acid and creosote in equal quantities, the whole being brought to a thick consistency with powdered iodoform. This cap should be pressed into place with pellets of cotton and the excess of the liquid constituents of the mixture should be removed in the same manner. It should then be covered with a thin piece of blotter, or paper from the gold foil book, upon which the filling should be completed with thin cement as formerly.—*Dr. W. E. Grant, Dental Digest.*

OBDURATE TEETH.

How often, in the treatment of irregularities and rotating teeth into position, have we been worried, perplexed and baffled by the insistence of the teeth returning to their uncouth position immediately after the retaining appliance has been removed. To meet such exigencies Dr. William J. Younger has adopted a new method. He believes that the cause of the obduracy is due to the tension of the tissues around them, which will not yield or weaken at the stretching of the fibres, but retain pertinaciously their tone and elasticity. Being confronted with an obdurate case of this kind in a young man of thirty-one, where one tooth had for two years perversely resisted all efforts to make it remain in a true position after the retaining ligatures had been removed, and would, within one hour show a decided movement toward its old location, Dr. Younger cut, with a narrow-bladed instrument, all the attachments around the root to the depth of the alveolar process—or, say, from one-sixteenth to one-fourth of an inch—with the exception of one point, about a line in extent, in front of the median line of the face of the tooth. This was done to prevent the possibility of the retraction of the gum from the anterior cervix. It was at once apparent that the tooth had given up the contest, and it was then tied in the position desired. Within a week the gum had reunited, and the fibres had, of course, contracted and reattached themselves to that portion of the tooth with which they were in contact and would now retain the tooth in the position placed. A week later the patient was presented before the Stomatological Club, and the tooth was found firm and in perfect condition.—*Dr. W. R. Meek, Stom. Gazette.*

DEPRESSED MALAR BONE.

Dr. D. D. Crowley, a surgeon of Oakland, reports an interesting case. Three years ago Mr. B. came to his office for the treatment of an injury to the face. Upon examination, the cutaneous and subcutaneous tissues were found to be greatly congested, almost closing the eye. A cooling lotion (acetate of lead, two drachms to a pint of water,) was prescribed, to be applied on a thin layer of surgeon's cotton every half hour, until the following day. During this visit the malar bone, upon slight pressure, was found to be movable, and the anterior surface of the superior maxillary bone crushed in. There were no wounds of the integ-

ument, as the cause of the fracture of the bone was a base-ball thrown with violence, striking the party in the face. The question arose, how could this bone, so greatly depressed, be elevated without making an external wound, and thereby disfiguring the patient, and interfering with the repair of the bone? Upon the following day the patient called again. The swelling had been greatly reduced, so much so, that the depression of the maxillary bone was quite evident. This condition permitted the eye to apparently protrude, giving the face a grotesque appearance. The floor of the orbit receded from the eye. The following operation was performed: Elevating the lip, an incision was made through the mucous membrane, where it is reflected from the lip to the alveolar process, over the roots of the bicuspids and two first molar teeth. A perforation was made in the bone the size of a lead-pencil, or a little larger, at the centre of this incision. A common urethral sound, No. 10 American size, was then carefully passed into the antrum through this perforation. The sound, which is curved near its end, could be carried to all parts of the antrum, elevating the anterior surface, which was crushed—elevating the floor of the orbit, which was sunken from the eye, and assisting in elevating the malar bone that was crushed into the antrum. However, the finger of one hand was carried inside the cheek and helped to replace the malar bone. For fear that the bones depressed and now elevated would not maintain their new position, and also for surgical reasons, iodoform gauze was used to fill the antrum sufficiently to support the parts mentioned. This dressing was renewed from time to time, and after about three weeks the osseous structure was found to be immovable, and the iodoform gauze was only continued for antiseptic purposes. At the end of four weeks suppuration ceased and only a weak carbolized lotion was used. In between five and six weeks the external aperture closed completely and the patient was discharged. No one could tell from external appearance which side of the face had been fractured.—*Dr. W. R. Meek, Stom. Gazette.*

CASE IN PRACTICE.

By I. A. Freeman, D.D.S., Chicago.

The patient, a man about thirty-five years of age, presented himself for consultation. His trouble consisted in, what purported to be from the history gained, an abscessed superior lateral incisor, which from time to time became sore. This was

followed by a tumor in the dome of the oral cavity, which continued to increase during periods of varied duration. At length it would disappear, or nearly so, to be followed by the same phenomena, after intervals of there or four months, longer or shorter.

At the time he came under my treatment the tumor was about the size of a large chestnut, and situated about midway between the line of the hard palate and the incisors, filling this region, being fully three-quarters of an inch in diameter. Upon examination, fluctuation was distinctly manifested, but pulsation could not be detected. Reasoning from this that the tumor was the result of the dead lateral tooth, it was decided to open the sac and evacuate the pus. Proceeding to do this with a narrow curved bistoury, an incision the width of the blade was made. The flow of blood which followed this was so great that it caused a doubt to arise as to the correctness of the diagnosis, and the knife was withdrawn without ripping open the tumor, as was first intended, no pus following the removal. The gush of blood revealed the true nature of the tumor to be that of an aneurism, requiring very different treatment from that of an abscess. It was well that the sac was not laid open, for the hemorrhage was very profuse and difficult to control, with the small incision made. Had the walls of the sac been relieved of the tension caused by the pressure upon them from within, greater difficulty would have resulted.

The treatment in this instance, after using a solution of persulphate of iron, which did not prove a permanent coagulant, was to wipe the entire inner surface of the sac with equal parts of the tincture of iodine and a 95 per cent. solution of carbolic acid. This proved a good and sufficient coagulant, which arrested the hemorrhage permanently. A cure resulted, as there has not been a recurrence of the trouble since the treatment—a period of nearly eighteen months.—*Dental Digest.*

AMALGAM AND ITS MANIPULATION.

By E. J. Waye, Sandusky, Ohio.

The above is the title of an editorial in the *Dental Digest* for May, by Dr. J. N. Crouse. In it he says, "There is a barrier to success with this material other than in its compounding. This is found in the difficulty of packing it in a perfect manner in the cavity." As the result of numerous experiments made under the most favorable conditions, in steel cups, having parallel sides,

and easy of access, with an amalgam "which, when tested by a micrometer, neither expands nor contracts, he could not *always*," he declares, "make a perfect filling."

If, in these experiments, the instruments used were such as sold by all dealers, and used by nearly all dentists, having large convex surfaces, either smooth or serrated, the former preferred, as they more readily permit of that peculiar rocking motion which seems to be regarded as an essential to the proper condensation or squeezing of the material into the more inaccessible parts of the cavity, no surprise need to have resulted from his failures.

The writer some time ago discovered that a perfect amalgam filling could not be made by him with these instruments, however excellent the quality of the amalgam used, or however great the care taken in packing it. The discovery came about in this way: Having completed a large crown approximal filling in a lower molar (using a matrix), in the packing of which much pains had been bestowed, and a corresponding pride in the result indulged in, the thought occurred to try what effect a smaller plunger with a different shaped face might show. A chisel-shaped instrument, having a face at right angles with the handle, was used, and, to my surprise, it very readily penetrated to at least one-half the depth of the cavity, at the sides, margin and posterior part of the filling. The only part which had been well condensed being the middle, just where the highest part of the convex surface came in contact with the filling, so as to make a strong pressure.

Subsequent experimentation convinced me that thorough and perfect condensation in all parts of the cavity with pluggers having convex surfaces is very difficult, if not impossible. Also, that the tendency of a convex surface is to draw the amalgam away from the more inaccessible parts of the cavity, and that an instrument having a flat surface, and somewhat smaller than those in use, is preferable.

To make a water-tight joint, a smooth and even surface against which to pack the amalgam is an important requisite and one which, in the past, if understood, has, in a measure at least, been neglected. It certainly had been by the writer, as examination under a magnifier fully attested.

Much more care and labor bestowed failed to entirely satisfy my enlightened judgment in this matter, until the expedient was adopted of using a spirit varnish, which, drying quickly, while it filled the tubuli, at the same time left a beautiful smooth sur-

face against which might be packed the amalgam, in a manner so perfect as not only to exclude moisture, but thereby prevent oxidization.

Recently Dr. Palmer, of Syracuse, N. Y., in giving his own method of making amalgam fillings, explains what had formerly been an enigma, viz., that however carefully prepared the cavity, and however skilfully packed the amalgam, oxidation will result if the amalgam be brought into contact with dentine, owing to the moisture always present in that material, and which he obviates by filling the tubuli and covering the entire surface with oxy-phosphate mixed quite thin, which, hardening quickly, leaves an excellent surface against which to pack the amalgam, accomplishing thereby two objects.—*Ohio Dental Journal*.

DOSAGE EXTRAORDINARY.

When Chunee, the celebrated Indian elephant, fell sick, it was decided that he was suffering from constipation, and after thirty-two hours of coaxing, he was induced to swallow his first dose, which consisted of 24 pounds of salts, 24 pounds of treacle, 6 drachms of calomel, 1½ drachms of tartar emetic, 6 ounces of powdered gamboge, and a bottle of croton oil. This produced no more appreciable results than an ordinary bun would have done. Six pounds of marrow beef with 4 drachms of calomel was then administered, but absolutely without result; and Chunee became so violent that it was decided to destroy him. But all attempts to get him to take the dose, consisting of 40 drachms of arsenic, with ½ drachm of corrosive sublimate and a lot of strychnine, were unavailing; and the aid of expert marksmen and finally of the military had to be called before he could be disposed of. It took 260 rifle balls to kill him. And behold! at the autopsy it was found that Chunee had been driven mad with a toothache. One of his enormous tusks was extensively decayed, and the diseased tooth, a specimen of *mal aux dents* on a very large scale, is preserved with the skeleton of the beast at the South Kensington Museum.—*The Dental Headlight*.

HINTS.

An old broken pair of beaked forceps makes a good articulator for crown- and bridge-work.—*W. H. Barley, Dental Digest.*

* * *

We are largely estimated by our fees; that is, the sensible people know that something cannot be had for nothing, and are therefore willing to pay a price commensurate with the value of the work.—*W. H. Chilson, D.D.S., Dental Review.*

* * *

Sometimes the canal might be approached with a Gates-Glidden drill, but there may be beginners in this convention, and I would not advise them to use a Gates-Glidden drill unless they know a solvent for steel.—*Dr. A. H. Suggett, Pacific Stomatological Gazette.*

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In abscesses of long standing, where the apex of the root has become completely divested of its soft tissues and covered with deposits, and is being wasted away by the process of absorption, it is necessary in most instances to excise the end of the root before a cure can be effected.—*A. H. Peck, M.D., D.D.S., Dental Review.*

* * *

Too many have entered the dental profession with the idea of becoming wealthy in a few years, at least at the expense of higher and more worthy ideals; but the thought that any one can become rich in a few years in the practice of dentistry is a delusion, pure and simple.—*W. H. Chilson, D.D.S., Dental Review.*

* * *

I believe that all fissures perceptible to the naked eye should be drilled out; especially if the cusps are very prominent. I believe that the fissures as shown by all the teeth I have examined, and I have split up quite a number, extend to the dentine, and where the cusps are prominent the fissures are more prominent.—*Dr. S. A. Nielson, Dental Review.*

* * *

When the tooth has been under a long operation of filling, from one to two or three hours, it is almost impossible for the

patient to decide whether the bite is free or not; and it is wise always, it seems to me, to have a positive understanding with the patient that if there is continued disturbance, if there is a continued soreness presenting itself, indicating the beginning of peridental inflammation, he should report at once, and have the cause removed. I think it is an easy matter to leave too much filling in the teeth.—*Dr. C. C. Chittenden, Dental Review.*

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In a short time the most of us will be using cataphoresis to obtund sensitive dentine. Making a fresh solution each operation certainly has a great deal to do with its ultimate success. In a case where the dentine is unusually sensitive it is possible that a certain amount of pain might be saved by heating the cotton with the solution before placing it in the cavity.—*Dr. H. D. Boyes, Pacific Stomatological Gazette.*

* * *

The careless use of arsenic for devitalizing a pulp may cause inflammation around many teeth. Ligatures or rings of rubber forgotten after removing the rubber-dam may do the work. Sometimes a little loose amalgam left under the gum margin may cause much trouble. Not long since I reduced quite an extensive inflammation by removing a piece of toothpick which had been forced under the gum and broken off.—*Dr. A. A. Palmer, Dental Review.*

* * *

Professor Frank Abbott has written a work on "Dental Pathology and Practice," which will be widely read. It is peculiarly unfortunate for the younger members of the profession, whose methods are most likely to be influenced by it, that that chapter devoted to the consideration of this question should be so inconsistent with modern bacteriological knowledge.

Dr. Abbott imparts a lucid understanding of the fact of putrid dentine and the conditions to be overcome, but the treatment proposed is contrary to the commonest laws of asepsis. The triumph of modern surgery is secured by striving to prevent the entrance of germs into, rather than their destruction after, admission to a wound. How hazardous to teach that a pulpless tooth may be operated upon without first adjusting the rubber-dam. The neglect of this precaution against the ingress of the myriads of micro-organisms, which are always present in the human mouth, is hardly excusable at this day. Dr. Abbott also

recommends the use of bichloride solutions for syringing out the pulp *debris*. "This is of doubtful utility, because it is at once precipitated in the presence of albumins, thus losing its germicidal and antiseptic powers." (McFarland.)

J. W. Wassall, M.D., D.D.S., Ohio Dental Journal.

* * *

To obtain the best results the gingiva should be temporarily dilated and receded before preparing the tooth to receive a band, and before setting a crown. This can be readily accomplished by twisting absorbent cotton on a waxed ligature, and tying it around the tooth against the gingiva the day before operating. The gingival border of the band should not only be in the proper relation to the line of attachment to the membrane, but it should also be dressed to a thin edge, and fit snugly to the tooth on all sides. When the surface of the tooth to receive a band cannot be made convex in a line parallel to the border of the gingiva, the band should be burnished to fit this concavity. But if the concavity is in the form of a deep fissure, it should be filled with gold or amalgam.

Raymond J. Wenker, D.D.S., Dental Review.

* * *

It is possible to put in a filling where the lateral surfaces of the cavity are made exactly parallel, without any undercut whatever. Any crown cavity in any molar, upper or lower, can be filled permanently when the lateral surfaces of the cavity are exactly parallel, provided the depth of the cavity is as great as the width. If a gold filling is properly inserted and well put in, it is impossible to remove it, even with instruments. It is held exactly as a nail is held in wood, when you drive it into a piece of timber.

Dr. B. C. Maercklein, Dental Review.

* * *

In the sterilization of cavities where we are afraid to uncover too much dentine, when the cavity is large I would first place a lump of carbonate of soda. It will take out all of the fatty matter and thoroughly disinfect the tooth. You have then taken out the putrescent matter, and left the decalcified. Is it not a fact that the tubuli are freest of the serum at the orifice? Throwing a hot blast on it forces the serum from the tubuli and vaporizes the tubuli, when the serum is excluded. In my experience, while it may cause pain to the patient, it is safe to throw as much hot air in the cavity, to make it as white as possible, before you throw medicaments into the tooth.

Dr. W. F. Lewis, Stomatological Gazette.

In letters from Dr. Lundy, and through his family, I have learned some of the incidents of practice in India, some of which were pleasant and others unpleasant. If you remember, Dr. Lundy is gentlemanly in dress and deportment, yet one evening when he appeared at a dinner in full-dress suit, the Englishmen left the table as soon as they learned that he was a dentist. He was invited to the palace of an Indian prince to perform several operations, and on each trip spent a week hunting and fishing. The Prince would show him the sights, and he spent twenty hours a week in dental operations. His remuneration was \$1,500. *Dr. J. P. Parker, Pacific Stomatological Gazette.*

* * *

Bacteria are found in all mouths, whether the teeth are sound or carious, and whether the individual is well or ill. Secondly, when the teeth are carious, there are generally more bacteria present in the mouth than when the teeth are sound. Thirdly, in acute diseases more bacteria are present than in health. Lastly, a systematic cleansing of the teeth with the tooth-brush greatly diminishes the number of the bacteria present.

British Journal of Dental Science.

* * *

When operating over the angle of the mouth, we often work at an angle of forty-five degrees. With the present drills and various appliances that we have it is easy to cut away too much substance. I have repeatedly seen teeth almost drilled through to the margin of the gum, in order to anchor the filling. The tooth standing in one direction and the drill pressing into it in the other, one is liable to come out at the margin of the gum. A tooth that has been so destroyed by the operator is likely to fail, and, in fact, it almost invariably fails, because the enamel has been deprived of its natural support—the dentine.

Dr. B. C. Maercklein, Dental Review.

* * *

The most important thing we have to do after removing such decay as is advisable is to thoroughly sterilize the cavity. Success in surgery depends upon the aseptic precautions taken—to leave the parts in a thoroughly aseptic condition, being sure that no bacteria are there. If you use the oil of cinnamon and hot air to force it into the tubuli of the tooth, and afterward removing what is on the surface, I think it impossible for the tooth to decay further.

Dr. Clyde Payne, Stomatological Gazette.

EDITORIAL.

OUR NEW SUBSCRIBERS.

It is a common practice in the management of some newspapers to constantly brag about their tremendous circulation, the statements being bolstered up with alleged affidavits, and such phrases as "Our subscription books are always open for inspection." These be commercial methods, adopted with the commercial purpose of attracting advertisers.

Under these circumstances, my own professional spirit bids me explain my reason for seeming to make use of similar methods. First, let me say that in alluding to our rapidly increasing circulation I am not actuated by any desire to attract advertisers. That department is beyond my province, and I scarcely take any interest in it.

It is a fact that the greatest writers who have contributed to, and, indeed, who have made, our literature, have donated their writings to publishers without remuneration. It is not the custom for dental magazines to pay for matter, as do the magazines of general literature, though, of course, there have been a few exceptions to this rule. But usually the dentist feels repaid for his work if, through its publication, he has made some addition to the fund of dental knowledge. It is not pecuniary reward which is the aim of his endeavor, but rather some achievement in the line of discovery, or the perfection of some method, whereby through himself the labors of his *confreres* may be lightened, or made of more service to suffering humanity. But there are gradations of excellence in dental writing, as in all of this world's work, and those who have reached that point where they have become recognized authorities, naturally seek a medium for publication through which they may hope to have the widest circle of readers, and thus attract the attention of the greatest number of practitioners, coincidentally benefiting the largest number of patients.

It being my desire in the future to make the ITEMS OF INTEREST the repository of the best work of our most advanced

thinkers, it becomes tremendously essential to the furtherance of my purpose that these men shall be convinced that the ITEMS offers the readiest means of reaching the practitioners of the world.

It is with the hope, therefore, of attracting to the journal the contributions of our best writers that I now give the details of our increasing subscription list, which may seem as astonishing to our readers as they have been to me.

In the October issue the statement was made that we had taken 1,032 new subscribers. This was a mistake, due to a clerical error, two lists having been confused, as shall be explained. Through a circular the publishers offered to send the magazine for three months, without charge, to any one desiring it. A great many have made such application, and a large percentage of these, after receiving the September number, at once forwarded the price of subscription for the coming year. In this way there was a duplication of names, and the total was unintentionally swelled, the number of *bona fide* new subscribers being about 900 at the time when the paragraph was written, rather than 1,032, as stated. Now, however, I have personally examined the subscription lists, and at present the number of new subscribers who have actually paid in cash for the year 1897 is 1,094, distributed throughout the United States and abroad, as shown in the appended table. In addition to this, 994 dentists have accepted the publishers' offer to have the journal free until the New Year, and of these more than 300 have subsequently sent in the price of the subscription, being included in the 1,094 recorded above as new subscribers. This leaves about 600 who have shown sufficient interest to send for the journal for examination, of whom, judging by experience, we have a right to expect more than 50 per cent. to become permanent readers of the ITEMS OF INTEREST.

When the present owners took the magazine, according to the sworn statements of circulation, filed with the Post Office Department, the ITEMS OF INTEREST had something over a thousand more genuine subscribers than any other dental journal in this country. Another thousand have already been added,

and by the New Year it is probable that one thousand more will have been enrolled.

After the New Year—well, after the New Year the magazine must speak for itself. I anticipate that the style in which papers sent to the ITEMS will be published will satisfy the most exacting. I will only add that it is my ambition to make the ITEMS the leading dental magazine of the world. At present I have the necessary capital, the extensive circulation, and the personal energy. All that is now needed is the support of the dental scientists. May I hope to have that?

RODRIGUES OTTOLENGUI.

DISTRIBUTION OF NEW SUBSCRIBERS.

Alabama.....	6	Kentucky.....	9	New Hampshire...	25
Arizona.....	2	Louisiana.....	4	Oregon.....	8
Arkansas.....	2	Maine.....	26	Ohio	30
California.....	16	Massachusetts.....	114	Oklahoma Terr'y..	2
Connecticut.....	4	Missouri.....	12	Pennsylvania.....	110
Dist. of Columbia.	2	Minnesota.....	5	Rhode Island.....	14
Colorado.....	2	Mississippi.....	2	South Carolina....	8
Delaware.....	1	Maryland.....	8	Tennessee.....	6
Florida.....	5	Michigan.....	13	Texas	10
Georgia.....	11	Montana.....	1	Utah	6
Idaho.....	1	New York.....	268	Vermont.....	20
Indiana.....	13	Nebraska.....	17	Washington.....	6
Illinois.....	12	North Carolina....	1	Wisconsin	15
Iowa	40	New Jersey.....	42	Total.....	1,045
Kansas.....	11	North Dakota.....	1		

FOREIGN.

Mexico.....	2	Turkey.....	1	Canada.....	31
France.....	2	Honolulu.....	1		—
Holland.....	2	Sumatra.....	1	Total.....	49
England.....	3	Russia.....	1		
South America....	2	Germany	3		

Total number of new subscribers..... 1,094

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“THE PACIFIC STOMATOLOGICAL GAZETTE.”

In a recent number of this wonderfully interesting journal one of its contributors is reported to have said, in an address to his local society, that all of the members of the society should subscribe to the *Gazette*.

This is a sentiment which we most heartily endorse, and we would urge all residents of the Pacific Slope to forward their subscription at once. This advice is really in the interest of those to whom it is offered.

The *Gazette* fills a most unique place in dental journalism. It is the organ, or mouthpiece, of the dental societies of the section in which it is issued. Its contributors, therefore, are men of one locality, and it is a source of considerable surprise to Eastern readers to find so much of real merit in the utterances of our brethren on the other coast. Not that we have not always known that there were men of marked ability in that section. The surprise is engendered by the discovery, through the *Gazette*, that practically all of the men who are actively engaged in society work there, have something to say at meetings, which not only is worth saying, but which is also worthy of being published; whereas, with us, it is too often the case that a large society membership includes only a few essayists or debaters.

To the dentists of the Pacific Slope, therefore, we most emphatically say, write for, and subscribe to the *Gazette*, which is most eagerly looked for among our exchanges. But we have also another thing to say, an invitation to extend. Should any gentleman in the occidental section find that a valuable essay needs illustrations which the *Gazette* does not find it convenient to supply, let him send it to the ITEMS OF INTEREST, and the best metropolitan engravers are at his service.

THE ROCHESTER DENTAL SOCIETY.

On the last page of this issue will be found reproduced an announcement recently received from the Rochester Dental Society, which we heartily commend to the attention of Executive Committees throughout this country as an object-lesson worthy of study and imitation.

Here is a society which has apparently solved the problem which has been unsolved by so many, the great problem of how to make a dental society useful as well as entertaining.

Here we find a programme for an entire season, completed

and published before the first autumn meeting. The essayists are all men from the immediate locality and members of the society. So are those who fill the other parts in the programme. What will be the result? The members, each having a part assigned to him, will all take a greater interest in the society, and, with a united effort, they will undoubtedly achieve a result of which they may be proud. Not only will their papers be worthy of publication, but the fact that all that will have been done, will have been done by society members, will place the society in a more advanced position as contributors to dental progress than where visiting dentists read the essays, and the natives, awed by the great man's dress-suit, sit and listen, and then rise to commend, not daring to antagonize in criticism what has been offered by a guest.

We wish the society a prosperous and pleasurable season, and heartily congratulate the Executive Committee.

It matters little what instruments a dentist uses; we all have ideas of our own and carry them out the best we can. Twenty years ago Dr. Atkinson, of New York, gave a clinic, and some one said: "If we have such instruments we can make as neat an 'operation.'" The next time the Doctor came with but one instrument, with which he excavated a cavity, then used it as a plugger and finished a filling. It is not the instruments but the individuality we put into them that gives success.—*Dr. Merriman, Jr., Pacific Stomatological Gazette.*

SUBSTITUTE FOR RUBBER CUP IN CLEANING TEETH.

C. P. Lennox, Toronto, uses as a substitute for the rubber cup in cleaning teeth, a short piece of the rubber tubing used for regulating. He stretches the tubing over a brush mandrel, a "barrel stone," or any other engine point of that shape, allowing about three-sixteenths of an inch of a free end. Used on engine in same way as a cup, it will spread out and follow the shape of the teeth, even going into folds and between teeth, which a cup will not do. The stretching of the rubber also causes a considerable pressure which you do not get in a cup.—*Dominion Dental Journal.*

ITEMS.

PHYSICIAN, NOT DOCTOR.

Physicians of culture are not patient with the name "doctor" as applied to the profession.

"It makes me weary," said a man in a Herald Square drug-store yesterday. "My profession is that of a physician, not of a doctor. 'Doctor' is my title, and it belongs to law, theology, pedagogy, and lots of things besides medicine. Yet persons will continually say 'he is a doctor.' Won't persons remember that 'doctor' is a mere academical title, and belongs to one who has taken the highest degree conferred by a university or college?"

This little outburst of indignation brought to my mind a story that is told of Chauncey M. Depew, LL. D. It appears that Mr. Depew was in a railway car in Illinois, when a gentleman with whom he had been in conversation left him with the words: "Goodby, Doctor."

"Are you a doctor?" asked a man in the seat behind him.

"Yes," answered Mr. Depew with a smile.

"Well, then, I wish you could tell what's the matter with me, for I have an awful pain just below my ribs on the left side," said the man, indicating the seat of the pain with his hand.

"My friend," replied Mr. Depew, "I am a doctor, but not a physician. My business is railroading, and all I can do is to recommend that a tunnel be drilled into your side, that you may learn what the difficulty is!"

The manager of the Bostonians had evidently dropped both "doctor" and "physician" from his vocabulary when on a Western tour some time ago. Jessie Bartlett Davis had fainted behind the curtain, in front of which he appeared.

"Is there a medical gentleman in the house?" he asked.

* * *

FOR SEASICKNESS.

Here is something new and strange in the way of a cure for seasickness. Its discoverer explains the physiological principles on which it is based.

He is an Irishman, Thomas Moy by name. Some years ago, when crossing the Irish Channel on board a passenger steamer, with a very rough sea, it occurred to him that as the motions of the vessel produced seasickness, it might be possible to so utilize

such motions as to prevent that disagreeable malady. The vessel has three kinds of motion: A rising and falling motion of the entire vessel; an oscillatory motion longitudinally about its centre of gravity; and a transverse rolling motion. Mr. Moy treated the longitudinal motions as having a tendency to drive matter, centrifugally, toward the head and stern, and the rolling motions as having a similar tendency to drive matter outward from the centre of such motions.

Now for details. "The entrance to the stomach," says Mr. Moy, "is on the left side of the body, the oesophagus end, and the exit is on the right side, the pyloric orifice; and my experiment consisted in utilizing the longitudinal motions so as to keep the food in the stomach, and utilizing the rolling motions so as to assist the natural operations of the oesophagus in propelling the food toward the pyloric orifice. This I effected by selecting a couch arranged in a line with the keel; lying with my head toward the engine room, and lying upon my left side." The experiment, Mr. Moy adds, was entirely successful, and he has always adopted it in rough seas, when a suitable berth could be obtained. It would be interesting to know whether any one else has tried the remedy, and, if so, with what result.

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MONKEYS NOT EXEMPT.

If there is anything in the world worse than seasickness I have not had the pleasure of hearing about it. How all the delights of life fade away, and what a quantity of misery comes in their stead when, on the second day out, the vessel tosses and rolls, and you toss and roll out of pure sympathy! But I take a grain of comfort from the fact that animals and men suffer alike from this malady. I once saw a monkey on board ship who had succumbed. The expression of his face was the most pitiable thing in the world, and the most pathetic. He sat on his haunches, his little hands clasped in agony, and ever and anon uttered a moan that was positively heartrending. A dog, also, under such circumstances, is a woful being. He doubles himself up, and looks at you with a glance which is too reproachful to endure. But a sick lion or tiger—well, the courage of the animal oozes out, and there is nothing left but a mass of forlornness. By the way, why is it that everybody laughs when a man suffers so acutely?—*Exchange.*

BREATHLESS SEVEN MINUTES.

Seven minutes is a long time for an air breathing animal to hold his head under water, but that is what Caliph did recently. Caliph—lately a happy father—is the larger of the hippopotami now in the Central Park museum.

To determine how long these river horses may remain under water, I timed them for nearly an hour and gained some interesting information. There were four of the animals timed, ranging in size from the animated tons of Caliph down through Mrs. Murphy and Fatima to baby Iris. The ticking seconds showed two minutes to be the average that they held their heads under water, and frequently the breathing nostrils would appear in the air at shorter intervals. Again, three or four minutes would elapse while one of the great homely heads was under water. Even little Iris was once out of sight for three minutes and forty seconds. When she reappeared, it seemed as though a broad grin of satisfaction was on her face. Fatima frequently held her breath for three minutes, and once Mrs. Murphy enjoyed a submersion of exactly four minutes.

But Caliph took the first prize for a long submergence. For nearly an hour his time varied from thirty seconds to nearly four minutes. Then, with a long breath and a switch of his diminutive tail, he sank, leaving only about ten square feet of his rounding back in sight, which looked like a portion of a huge, partially submerged granite boulder. One, two, three, four minutes passes. His record for that day was broken. Five, six minutes went, and not even his ears appeared. Then seven minutes and one second. Up he came for a fresh supply of oxygen. He had done his best.—*Exchange*.

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THE WISE GEESE AND THE PIGS.

A gentleman living in eastern Georgia owned a pair of geese and some half-grown pigs, both of which resorted to a small plum thicket on the hillside to pick up the fallen fruit.

A small branch of one of the trees was broken and bent down to the ground, and the geese had somehow discovered that by catching the end of the branch in their bills and shaking the trees by means of it they could bring down the plums.

The pigs seeing what was going on, soon found it to their interest to follow the geese to the plum thicket.

The geese would shake the tree, and the sound of the grateful shower of fruit would be heard, and before they could eat the plums the pigs would have greedily gathered up most of them. Greatly exasperated, and with good reason, one of the geese would seize a pig by the ear, while the other marched on the other side of him screaming and scolding. In this way, beating poor piggy with their wings at every step, they would escort him to the top of the hill and there let him go.

Then they would return and shake the tree again, with a similar result.—*Youth's Companion*.

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A NEW FILLING MATERIAL.

The combination of silex, oxide of zinc and gutta-percha was found to be good to resist mastication; but the silex, being so gritty, the burnisher left a black mark on the surface of the filling. Many other combinations were tried, but did not meet with satisfactory results until I tried the combination of

White gutta-percha	eight parts.
Aluminum filings	five parts.
Oxide of zinc.....	one part.
Whiting	one-half part.

This admixture I have been very much pleased with, and have named it "Aluminized Gutta-percha." It is easily manipulated, and holds its position in the cavity when firmly packed. I have not noticed any bulging, which is so common in the pink gutta-percha.—*Dr. F. W. Bliss, Pacific Stomatological Gazette*.

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THE DENTIST IN SHAKSPEARE'S TIME.

An interesting letter from the Bishop of Winchester to Mr. (afterwards Sir) William More, has lately been unearthed. It bears date August 19th, 1572, and contains this interesting paragraph: "I doe remember that you tolde me of one whome you knewe being skillful in trimming and stopping of tethe, if you can cawse the same fellowe to come unto me aboute that purpose you shalle greatlie pleasure me." This certainly looks as though any skill in dental science was at that time a rarity, and that even the best of operators were held so low in esteem that the term "fellowe" was thought good enough by way of description for them.—*British Journal of Dental Science*.

NOTICES.

Program of the Rochester Dental Society.

SESSIONS 1896-97.

Date, 1896.	Office of Essayist.	Subject.	Discussion Headed by	Office Incidents Headed by	
Oct. 13, Nov. 10, Dec. 8,	Dr. F. J. Woodworth, Dr. W. H. Barr, Dr. J. H. Beebee,	Dr. W. A. White, Dr. F. French, Dr. I. C. Edington,	Dr. B. S. Hert, Dr. F. A. Green, Dr. C. H. Nicholson,	Dr. J. R. Qua. Dr. F. H. Lee. Dr. J. S. Furner.	
1897.	Jan. 12, Feb. 9, Mar. 9, Apr. 13, May 11, June 8,	Dr. W. W. Belcher, Dr. I. C. Edington, Dr. R. Eriker, Dr. F. French, Dr. L. H. Gilbert, Dr. B. S. Hert,	"Articulation of the Teeth of Animals," "New Remedies and Methods," "Replantation," "Influence of Diet and Medications on Teeth," "Systemic Treatment of Dental Diseases," "The Year's Advancement in Dentistry,"	Dr. J. E. Line, Dr. F. J. Woodworth, Dr. R. H. Hotheinz, Dr. F. L. Sibley, Dr. W. H. Barr, Dr. L. H. Gilbert,	Dr. C. F. Howell. Dr. J. W. Cowan. Dr. B. G. Saunders. Dr. P. H. Smith. Dr. W. W. Smith. Dr. B. F. LaSalle.

OBSERVE:

First—The place of meeting is to be held in alphabetical order of members.

Second—A list of subjects has been prepared and arranged as stated herein.

Third—A member at each meeting is to head the discussion on the paper of the evening.

Fourth—A member at each meeting is to head the discussion under "Incidents of Office Practice."

Fifth—A question box is to be started, open to all desiring information.

The Essayist is required to send his paper to the member discussing it at least one week in advance of meeting.

The Executive Committee expect to complete arrangements for three interesting special meetings during this winter's session.